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Hunterian Lecture

ON THE

PATHOLOGY AND TREATMENT OF THE RETAINED TESTIS IN CHILDHOOD.

Delivered before the Royal College of Surgeons of England on Feb. 18th, 1927,

BY A. H. SOUTHAM, M.D., M.CH. OXF., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR OF SURGERY, ROYAL COLLEGE OF SURGEONS OF ENGLAND;

AND

E. R. A. COOPER, M.D., M.SC. MANCH.,

DEMONSTRATOR OF ANATOMY IN THE UNIVERSITY OF MANCHESTER.

IN selecting a subject for a lecture in commemoration of John Hunter none is more appropriate than the question of retention of the testis. This problem was one of profound interest to Hunter, and it need hardly be recalled that in 1786 he published his classical work on the "Situation of the Testis in the Fœtus with its Descent into the Scrotum." In this treatise he wrote: "The descent of the testicle is very slow which is not completed before birth, often requiring years for that purpose, and it sometimes never reaches the scrotum, especially the lower part of it. It sometimes happens that one of the testicles remains in the cavity of the abdomen through life, never changing its situation. When one or both testicles remain through life in the belly I believe they are exceedingly imperfect, and probably incapable of performing their natural functions, and that this imperfection prevents the disposition for descent taking place." In spite of the large amount of research in this direction, it is remarkable to find that little has been added to Hunter's observations on the phenomenon of testicular descent. His teachings on this problem, as on many others, have stood the test of time. There has been, however, considerable controversy regarding the condition of the retained testis which Hunter believed to be "exceedingly imperfect." Without referring to the various controversial aspects, it is hoped in this lecture to show that such a testis is not necessarily imperfect, and that any serious alterations in its condition are secondary, depending on the persistence of the malposition. Should this prove to be the case, then it is surmised that operative completion of the anatomical descent of the testis, before the intervention of secondary changes, will enable the gland to pursue its normal development.

The condition of retention of the testis was recognised long before Hunter gave the subject prominence in his "Treatise on Animal Œconomy" in 1786. It is said that Tamerlane, the conqueror of Western Asia during the fourteenth century, was afflicted with the deformity. Reference was made to the anomaly in the writings of Paré, Meibomius, and Salmuth; Haller, in 1755, in his "Opuscula Pathologica" described the intra-abdominal origin of the testis, and the descent into the scrotum during intra-uterine life. During the nineteenth century Lockwood emphasised Hunter's beliefs regarding the importance of the gubernaculum in the descent of the testis; whilst in 1851 Lecompte noted the predisposition of the misplaced organ to malignant degeneration. The first recorded operation to correct the malposition of a retained testis appears to have been performed by Koch of Munich in 1820.

Statistics show that anomalies of migration of the testis are not infrequent, true retention of the organ being perhaps the most common of these deformities. It has been stated by Wrisberg that 30 per cent. of newly born infants suffer from incomplete descent of one or both testes, though it is believed that the greater number of these organs reach the scrotum spontaneously during the first few weeks of life. It is difficult to estimate accurately the incidence of retention amongst the general male population. In consequence the rather limited figures from hospital admissions and army recruits will be quoted as the most convenient.

Of 10,000 recruits examined by a recruiting board in Scotland in 1916–17, unilateral or bilateral cryptorchidism was present in 52 individuals, an incidence of 5 cases per 1000. Hempel found 2 cases per 1000 were so affected in 7,000,000 Austrian recruits; while figures obtained from the American War Department in 1920 estimated the occurrence of this deformity at 3·1 per 1000. At the Manchester Royal Infirmary during a period of 15 years, amongst 57,000 male surgical admissions, there were 409 cases of retained testis—that is, 7 per 1000.

The association of some anomaly of testicular descent with hernia is not a rare occurrence. Mixter, of Boston, has stated that mal-descent of the testis was present in 7·1 per cent. of cases of hernia in children. Coley has estimated the incidence at 3 per cent. At the Royal Manchester Children's Hospital cryptorchidism was found to be present in 9 per cent. of cases of inguinal hernia. In general, as far as these statistics permit, it may be stated that unilateral or bilateral cryptorchidism occurs roughly in 5 subjects per 1000; and the condition is often associated with a hernia of the inguinal type. The occurrence of retention of the testis seems, then, to be of sufficient frequency, apart from complications, to warrant serious consideration directed towards its correction.

There still exists a wide variance in the opinions of surgeons as to the best way of treating this deformity, and many pathologists are doubtful as to the functional capacity of a retained testis. Whilst it is true that the condition may cause little trouble during childhood, it may be a source of considerable irritation to the individual in later life. This results not only from the abnormal anatomical position of the organ, but also from secondary complications, and doubt as to its ability to function.

I propose first to give a short account of the mechanism of the descent of the testis, and to mention the function of the gland; secondly, the anatomical and histological structure of the normal and retained organs will be compared; and lastly, the question of treatment is to be considered and a description given of the anatomical results obtained in 50 cases which have been under observation during the past five years. The series under consideration are all cases of true retention of the testis—that is to say, a congenital, anatomical defect, where the testis, descending in its normal path, has failed to reach the scrotum. No case of ectopia testis, where the organ deviates from its usual route, has been included.

THE MECHANISM OF DESCENT OF THE TESTIS.

The testes in man are developed as intra-abdominal organs close to the primitive kidneys, and during intra-uterine life they descend along the posterior abdominal wall, through the inguinal canal to the scrotum. Hunter pointed out that the mechanism, whereby the testes reach the scrotum, may sometimes fail, and the organs are then arrested at some intermediate point in their path of descent. In the early embryo the testis is attached to the posterior abdominal wall by a fold of peritoneum known as the mesorchium. Through the upper part of this fold the blood vessels pass to or from the gland. Fixed to the lower end of the mesorchium is the gubernaculum, an actively growing mass of fibro-muscular tissue. The gubernaculum grows downwards and draws with it the posterior parietal peritoneum which forms a closed pouch, the processus vaginalis. At the same time the gubernaculum pulls on the testis through the intermediation of the mesorchium.

When the growing gubernacular bud approaches the groin it initiates an evagination of the strata of the anterior abdominal wall. Still anchored to the processus vaginalis and the testis, it passes through the evagination and becomes attached to the redundant pouch of integument forming the scrotum. Thus the inguinal canal, processus vaginalis, and

scrotum are formed in advance of the descending testis. The subsequent shortening of the gubernaculum and its firm attachment to the bottom of the scrotum are said to be instrumental in bringing the testis into its ultimate scrotal position. It must be borne in mind, however, that arrest of further growth of the gubernaculum, after becoming attached to the scrotum, together with normal growth of surrounding structures, is more likely to account for the pulling of the testis into the scrotum.

THE FUNCTION OF THE TESTIS.

It has long been known that the testis has a dual function. Primarily it is a spermatogenetic organ, but it is also responsible for the development of the secondary sexual characteristics. Hunter, in 1786, showed that the male sexual characters were independent of the production of spermatozoa, and that the development of the former was prevented by removal of the testes. It is still undecided which element of the testis is responsible for the development of characteristic sexual changes. The older, and perhaps more general opinion, is that the interstitial cells of Leydig produce an internal secretion which initiates the sexual changes at puberty. It is significant that the onset of these changes is coincident with the reappearance of large numbers of cells of Leydig.

Recently it has been urged by Kenneth Walker that the spermatogenous cells produce the internal secretion. He believes that the interstitial cells are merely trophic in their function, and furnish the tubular cells with nutritive material.

PATHOLOGY OF RETAINED TESTIS.

In reviewing the older literature it was found that the retained testis was almost invariably described as abnormal in structure, and more or less useless to the individual so far as spermatogenesis was concerned. Hunter stated emphatically that the retained gland was structurally imperfect, and he has received much influential support. On the other hand, Curling, some 50 years after Hunter, concluded that the retained organ was not malformed originally, but was normal until puberty. Other workers, confining their studies to the retained testis in childhood, came to similar conclusions. Recently great interest has centred round the part played by the scrotum in spermatogenesis. It seems to have been proved conclusively by the researches of Crewe, Fukui, and Moore that the lower temperature of the scrotum is the essential factor for natural and complete spermatogenesis.

TABLE I.—*Sizes of Scrotal and Retained Testes.*

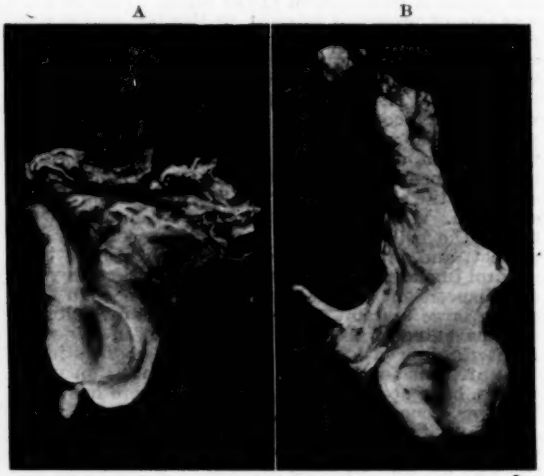
SCROTAL.				RETAINED.			
Age.	L.	B.	T.	Age.	L.	B.	T.
12 m.	1·6	×0·75	×0·65	14 m.	1·3	×1·0	×0·7
2 yrs.	1·5	×1·0	×0·8	2½ yrs.	1·1	×0·75	×0·6
5½ ,,	1·45	×0·95	×0·7	4 ,,	1·5	×1·1	×0·5
8½ ,,	1·7	×1·0	×1·0	6 ,,	1·8	×1·2	×0·8*
13 ,,	2·0	×1·45	×1·2	13 ,,	2·3	×1·4	×1·2
				13 ,,	3·2	×2·4	×1·7*
17 ,,	2·5	×1·65	×1·5	15 ,,	2·7	×2·4	×1·4*

L. = Length: Upper to lower pole.
B. = Breadth: Anterior to posterior margins.
T. = Thickness: Right to left surface.
All measurements in centimetres.
* Testes retained in abdomen. m. = months; yrs. = years.

The present investigation was undertaken in order to compare the structure of the retained and scrotal testes in children of the same age, and to see what changes occurred in the former organs as age increased. Ten retained testes were obtained by operative procedure from children of varying ages and two from adults. Each was a unilateral cryptorchid, and controls of similar age and of corresponding sides were procured from autopsies. The dimensions were taken after fixation and are shown in the accompanying table (Table I.). It will be seen that the size of the retained testis was very variable. Those situated near the internal abdominal ring were usually smaller than the scrotal organ of the same age. It is interesting to note that those glands arrested in the abdomen were invariably larger than the normal ones of that age, whilst those situated in the lower part of the inguinal canal were similar in size to the corresponding scrotal organ.

It is proposed to describe briefly the gross and minute anatomy of the scrotal testis during childhood and adolescence, and afterwards to consider the retained organs and compare them with their controls. The scrotal testis at birth was of small size, but increased rapidly during the first few years. Between the fifth and eighth years growth was apparently slower, but towards puberty advanced until adult dimensions were attained. At first the epididymis and testis were of equal size in section, but later the growth of the former was slower, so that it was subsequently smaller than the testis.

FIG. 1.

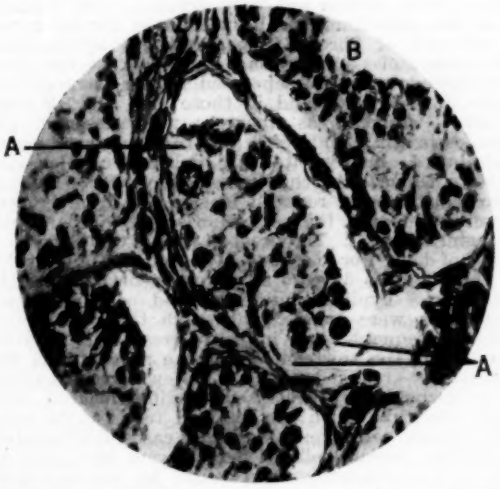


A, Testis retained in lower part of inguinal canal, aged 14 months. B, Scrotal testis, aged 4 months. In both cases the digital fossa is open and a vas aberrans is present.

The relation of the epididymis to the testis was variable. Usually the two structures were in apposition, but in a small percentage of cases they were separated by a digital fossa of variable width (Fig. 1 (B)). In nearly all those glands where the digital fossa remained open a stalked appendage was suspended from the lower pole of the testis. This was the vas aberrans—a remnant of the Wolffian body, and in all cases was composed of vascular, cellular, fibrous tissue. The parenchyma of the testis in early life consisted of small closed tubules isolated by delicate immature connective tissue. Towards the end of the first year the tubules became closely packed, a minimum amount of fibrous tissue separating them. This condition prevailed except at two periods—during the second and third years, and between the ninth and eleventh years, when the tubules were again isolated by delicate stroma. After this period the tubules increased greatly in size and were in close contact, being separated only by their basement membranes. Except at the earliest ages the tubules all presented a central lumen, the tubular cells being arranged in rows within the surrounding fibrous basement membrane. From fœtal life until the tenth year the tubules contained only two types of cells—undifferentiated cells and spermatogonia (Fig. 2). The former were characterised by a pale, oval nucleus with irregularly arranged chromatin spots, surrounded by an ill-defined syncytial mass of vacuolated proto-

plasm. One to four spermatogonia were present in each tubule. They consisted of a very large, spherical, deeply-stained nucleus with distinct peripheral chromatin spots, and a large well-defined cell body of clear protoplasm.

FIG. 2.

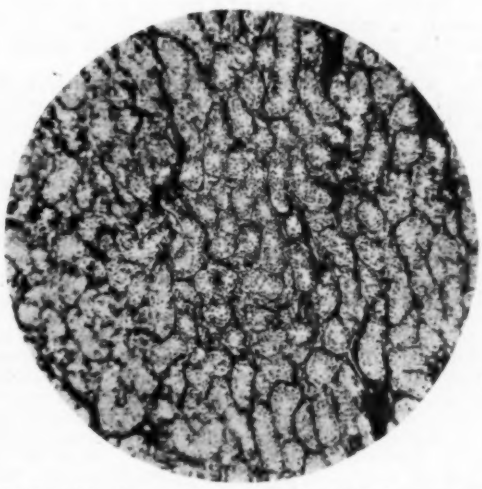


Section of scrotal testis, aged 10 months. A, Spermatogonia. B, Undifferentiated cells. 23 × 400.

About the tenth year a further differentiation of the undifferentiated cells occurred. The nuclei appeared to have lost their innumerable chromatin spots which were replaced by one or two definite nucleoli. These cells then came to resemble those described as true cells of Sertoli. This differentiation continued throughout puberty and was accompanied from about the twelfth year onwards by mitotic changes in the spermatogonia, fully formed spermatozoa being recognised about the fourteenth year.

It is significant to notice, however, that great variation occurred in the date of onset of spermatogenesis, and that in spite of adolescent age a scrotal testis frequently presented a preadolescent histological structure. The interstitial cells of Leydig were found to be in large numbers during fœtal life and until the fourth month after birth occupying the wide intertubular intervals. After that age they remained in abeyance until the twelfth year, when they reappeared in the small intertubular angles and persisted throughout puberty in what was presumably an active condition. It was remarkable to find that between these two ages few or no cells with any resemblance to cells of Leydig could be distinguished in the interstitial tissue.

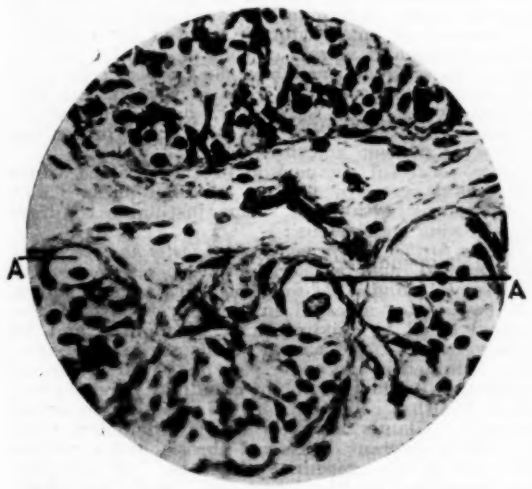
FIG. 3.



Section of testis, aged 14 months, retained in lower part of inguinal canal showing closely packed tubules. 22 × 60.

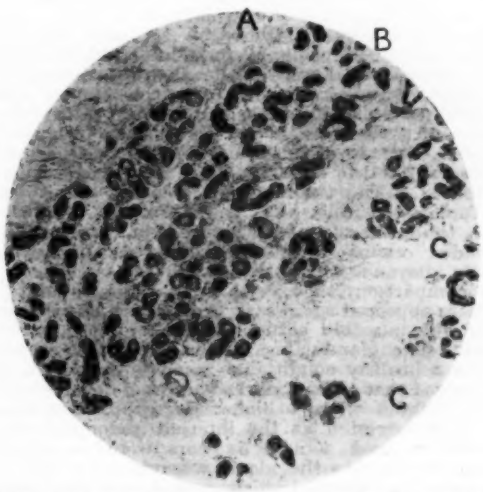
Turning now to the retained testes, mention has already been made of the variation in size. An interesting feature in these glands was the high percentage of cases presenting a wide separation of the testis and epididymis (Fig. 1 (A)), but this condition was not peculiar to the retained organ.

FIG. 4.



Section of testis, aged 13 years, retained in lower part of inguinal canal. A, Spermatogonia. 3 × 400.

FIG. 5.



Section of testis, aged 13 years, retained in abdomen. A, Tunica albuginea. B, Peripheral tubules. C, Fibrous tissue occupying centre of gland. 4 × 35.

Three testes examined were retained in the inguinal canal near the external abdominal ring. Two of these, from children aged 14 months and 13 years respectively, lay just internal to the external ring, whilst the third, from a subject of 60 years, was situated *in* the ring which was considerably enlarged by the

accompanying hernia. The retained testis at 14 months (Fig. 3) was, histologically, practically identical with the scrotal organs from children aged 10, 11, and 12 months. The surrounding tunica albuginea was of similar width, the tubules were all closely packed and of equal size, and contained healthy undifferentiated cells and spermatogonia. The interstitial tissue was of a fibrous nature, and the basement membranes fully formed. Interstitial cells of Leydig were in abeyance as in scrotal glands of this period.

One histological feature alone distinguished this retained gland from corresponding scrotal organs, and that was a slight thickening of the fibrous interstitial tissue in the centre of the organ. In consequence it was assumed, by careful comparison between this retained testis and the normal ones, that the parenchyma of the former was healthy, but its development was slightly retarded; in other words, the gland, during 14 months, had attained the condition of a scrotal organ of under one year.

The retained testis at the thirteenth year was equal in size to normal testes of this age. The tubules were numerous and fairly closely packed, and similar in size to those of a completely descended testis at the twelfth year. The basement membranes were fibrous, but cellular stroma occupied the small intertubular intervals. Differentiation of the undifferentiated cells was proceeding as in normal testes, and characteristic cells of Sertoli were recognisable. The spermatogonia (Fig. 4), however, although numerous, were still in the resting condition as far as spermatogenesis was concerned. It is concluded therefore that this testis was healthy, but in a pre-adolescent condition, its development again having been retarded. It must be added, however, that a similar condition was found in a scrotal testis of 13 years where the tubules were small, and contained simple, resting spermatogonia and specialised undifferentiated cells. The cells of Leydig were similar in appearance and numbers in both testes.

It is interesting to record that the testis arrested in the external abdominal ring in a man of 60 years contained some degenerated tubules and many active ones. The latter showed complete spermatogenesis, even to the formation of spermatozoa.

Two testes from children aged 4½ years, and one from a child of 2½ years, retained in the higher parts of the inguinal canal, were smaller than the corresponding scrotal organs. In both cases the tubules were separated, cellular stroma occupying the intervening spaces. At the earlier age they were irregularly scattered, a group of tubules alternating with a mass of stroma; at the later age they were more evenly distributed. The tubular cells were of two types, undifferentiated cells and spermatogonia. On the whole, the latter were less frequent than in the fully descended organs of this period. Cells of Leydig were in abeyance as in the normal testes.

In comparison, then, with scrotal glands of this age there appeared again some retardation of development, with possibly actual reduction of the parenchyma. The glandular elements present, however, were in a healthy condition. In these cases it is to be observed that a more marked arrest of development was associated with a higher degree of retention. Two testes arrested at the internal abdominal ring in children aged 4 and 5 years were examined. At the former age the gland was characterised by a progressive fibrosis which apparently had commenced posteriorly at the mediastinum testis and spread towards the anterior margin, where cellular stroma was still recognisable. At five years the intertubular tissue was of a cellular nature. In both cases the tubules were smaller than in the corresponding scrotal glands, and they were isolated and evenly scattered. They contained simple, undifferentiated cells, and two or more spermatogonia. Compared with scrotal testes at the fifth year it appeared that in these two retained organs there was an appreciable arrest of development, the number of tubules being smaller than in the healthy organ, and their isolation in marked contrast with the closely packed arrangement in the fully descended gland. But again the tubular elements, though collectively reduced in amount, were of characteristic appearance and structure.

In considering the glands arrested in the abdomen, from children aged 6, 13, and 15 years, the large size of these organs was very striking. On examination this was found to be accounted for by a predominance of fibrous tissue, and not by an overabundance of parenchyma. In each case the testis and epididymis were separated by an extraordinary wide digital fossa, and in those of 6 and 13 years a large, stalked vas aberrans was present. The tubules in the glands of 6 and 15 years were evenly distributed, but isolated by delicate cellular connective tissue. At the thirteenth year the tubules were considerably reduced in size and number, and were confined to the region adjacent to the tunica albuginea (Fig. 5). The greatest part of this organ consisted of dense fibrous tissue. The contents of the tubes in the gland at 6 years appeared to be in a healthy condition. Typical undifferentiated cells and spermatogonia were present, although the latter were far less frequent than in the corresponding scrotal organ. At the thirteenth year the parenchyma was extensively reduced. Only a few spermatogonia were recognised, specialised undifferentiated cells filling the tubes. In the retained testis at 15 years the tubular cells were in many cases degenerated, but many typical cells of Sertoli were seen, and an occasional spermatogonium could be distinguished. Cells of Leydig were not observed in the testis at the sixth year, but in the others they were characteristic and occupied only the intertubular intervals. It appeared, therefore, that abdominal retained testes were subjected to an invasion of fibrous tissue, accompanied by different degrees of degeneration and disappearance of the tubules. It is impossible to say whether the fibrosis was a primary change causing retrogression of the tubular elements or whether it was secondary, replacing the already compromised parenchyma.

It is interesting to include in this series a small body removed along with a hernial sac from the inguinal canal of a human hermaphrodite of 38 years. It consisted of small tubules isolated by vascular, fibrous tissue and masses of cells of Leydig. In the half dozen sections available, the tubular cells were seen to be mostly typical cells of Sertoli, but two spermatogonia were recognised, one characteristic of the resting condition, and the other presenting a state of nuclear activity.

After a careful comparison of the retained testis and scrotal organ in children at different ages and in different situations, it seems justifiable to draw the following conclusions:—

1. *The further the pre-adolescent testis has descended in its normal route the more closely does it correspond to the scrotal gland of the same age.* It has been shown that two testes arrested in the lower part of the inguinal canal in children aged 14 months and 13 years were similar to scrotal glands of the same age; others retained in the upper part of the canal showed a reduction in the amount of glandular parenchyma, but a healthy condition of the existing essential elements. Glands arrested in the abdomen were affected by different degrees of fibrosis and a greater reduction in the germinal elements, but amongst those persisting, healthy forms could be distinguished. A testis found in the external abdominal ring in a man of 60 years showed complete spermatogenesis in parts. Hunter believed that an abdominal retained testis was more imperfect than one late in getting into the scrotum; whilst Bland-Sutton is of the opinion that a healthy testis is never found in the inguinal canal.

Recently Moore has carried out experimental elevation of the testes in animals, and later has replaced these glands into the scrotum. He finds that "the more nearly the testis so treated returns to its normal scrotal position, the more nearly normal

will be the tubular epithelium." Crew, working on the retained testes in horses, indicates that the further a testis lies from its normal position, the more abnormal are its appearance and histological structure. Crew, Fukui, and Moore have recently urged that the presence of the testis in the scrotum is necessary for complete spermatogenesis. According to these workers the lower temperature of the scrotum is the essential factor. Keith, however, believes that the scrotal testis is relieved from the pressure in the abdomen exerted by the diaphragm.

2. At whatever position the testis is arrested, and at whatever pre-adolescent age it is examined, the essential elements of the gland—spermatogonia and undifferentiated cells—are, if not in all parts, certainly in many areas identical in position, structure, and relationship with those of the corresponding scrotal organ. This conclusion is comparable with that of Curling and his supporters, all of whom have described a healthy condition of the retained testis in childhood.

3. *The younger the age at which a retained testis is examined, the more are the normal appearances and characteristics found.* It may be stated conclusively that until puberty, the tubular cells retain their healthy pre-adolescent characters despite any reduction in the amount of parenchyma. After that time degenerative changes may occur which are more marked where a higher degree of retention prevails. It may be added with confidence that a retained testis develops normally during the early part of postnatal life, but later, if it remains in its abnormal position, then and then only does it undergo retrogressive changes.

4. Certain changes are found to occur in the retained testis. They are recognisable as puberty approaches, and are most marked in the testes arrested in the abdomen or in the higher parts of the inguinal canal. (1) The earliest change is the appearance of fibrous tissue which at first is of a primitive cellular nature, but later may become fibrosed. (2) There is an "apparent" disappearance of the tubules, due either to the failure of the gland to form new ones, or to the increase in the stroma causing a wider separation of those present. (3) Later there is an "actual" disappearance of the tubules which may result from the advancing fibrosis. (4) At puberty there is a persistence of the quiescent state of the nuclei of the spermatogonia.

5. Throughout pre-adolescent life the undifferentiated tubular cells retain their vitality, and, as in the scrotal organ, undergo further specialisation into cells of Sertoli. These are regarded as the nutritive elements of the spermatogenetic cells. It is remarkable to find that the cells of Sertoli are very resistant to the continuance of the malposition, and are typical even in adult life. Since the cells of Sertoli persist in retained testes, it seems reasonable to suppose that they are trying to preserve the healthy condition of the germ cells. If, by the time puberty is reached, the testis is still misplaced, the cells of Sertoli seem to be incapable of preventing atrophic changes in the spermatogenous cells. Should such a testis acquire its normal scrotal position prior to puberty, then the cells of Sertoli will be ready to continue their function of nourishing the germinal cells.

6. The interstitial cells of Leydig are apparently not influenced by the abnormal situation of a retained testis. As in scrotal glands, they are in abeyance during early childhood, and present and of typical appearance at puberty, and in the adult. As far as could be judged, they appeared to be in similar numbers in the scrotal and retained organs. The explanation of the apparent exaggeration so frequently described seems to be that they become more obvious because the tubules are less numerous or more widely separated.

7. In no cases of retained testis examined was there anything of an abnormal nature in the size or structure of the epididymis. The only diversion was that more frequently in the retained testis the epididymis and testis were separated by a digital fossa of variable width, but a similar condition was observed in some scrotal testes.

THE FUNCTION OF THE RETAINED TESTIS.

It is now generally agreed that double cryptorchidism in both man and animals is associated with aspermatogenesis, but the elaboration of the internal secretion responsible for the production of the secondary sexual characters is complete. Great interest has centred round this aspect of the subject, and much valuable research work has been carried out. Hunter considered that the absence of spermatogenesis was due to the imperfect development of the retained testis, and Bland-Sutton supports this view. Curling concluded that the testis was normal in form and structure until puberty, when further evolution ceased. Murdoch was of the opinion that the retained testis acquired its mature structure at puberty, but later underwent atrophy owing to its faulty position.

After careful histological examination of the retained testis and comparison with the scrotal gland, it is suggested that the abnormal changes are secondary. It is surmised that the retained testis develops normally during early postnatal life, but later, if it does not reach the scrotum, it undergoes retrogressive changes.

In some animals the testes are normally situated within the abdomen and only pass into the scrotum during the breeding season, when the process of spermatogenesis is active. After this period the glands are withdrawn into the abdomen by the cremaster muscle, shrink to half their size, and are said to resemble the retained testis in man. In these mammals the testes are only spermatic when in the scrotum, the lowermost point of their descent. In man the glands have come to reside permanently in the scrotum, and, as in those mammals where intermittent descent takes place, only acquire their full development and function when they reach the terminal point of their destined course.

It becomes evident, then, that the functional activity of the testis depends upon its anatomical situation. Since the position in the scrotum is essential, it is justifiable to surmise that retained organs may complete their development if placed by operative procedure into the scrotum before they are seriously compromised.

TREATMENT.

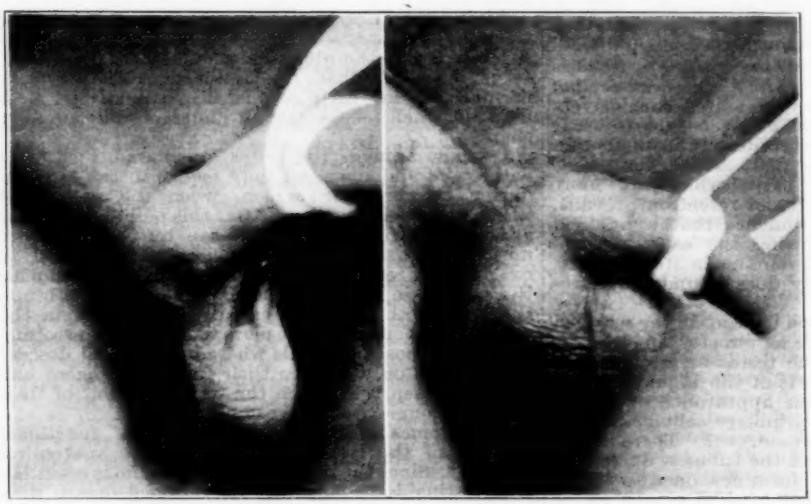
Owing to the frequently unsatisfactory results following surgical intervention in these cases, surgeons sometimes postpone operation in the hope that descent of the testis will occur naturally. Spontaneous descent, however, is not common after the first three years of life, and this form of treatment is to be discouraged. In view of the complications associated with retention of the testis, the treatment becomes a matter of considerable importance. The testis in the inguinal canal is exposed to pressure from the contraction of the abdominal muscles, causing pain, inflammation, and subsequent fibrosis. Hernia is usually associated with retained testis, and the risks of torsion and malignant disease are not to be ignored. It appears only logical to preserve an organ which is of such great importance to the human economy, and every effort should be made to place the testis in surroundings favourable for its protection and maturation. Whilst freely admitting that it is as yet uncertain whether a testis which has been transplanted into the scrotum will develop and function normally, it is believed that if this can be done in early life without injury to the structures concerned, there is a reasonable prospect that the organ will become efficient. Even if the dual rôle of the testis is not acquired, the gland should never be sacrificed, owing to its power of producing the internal secretion on which depends the development of the male characters. Furthermore, its presence in the scrotum will be a source of satisfaction to the sensitive individual, whilst it is always desirable to restore conditions to normal if it be possible without undue risk.

Apparently the retained testis is more liable than the normally placed organ to undergo malignant degeneration. In a series of 45 cases of malignant

testicular tumours collected from the Manchester Hospitals, over a period of 15 years, seven cases occurred in the retained testis. Dew, in reviewing the published figures, comes to the conclusion that malignancy is relatively more frequent in the abnormally placed testis, though this tendency has probably been exaggerated. This complication is rare in childhood, and operation in early life should therefore help to lessen its occurrence in later years.

The adoption of traction and gentle massage of the testis in an attempt to encourage its spontaneous descent during the first years of life will not endanger its future development. The wearing of a truss must be strongly discouraged, for whilst it may control the accompanying hernia, the pressure on the testis leads to attacks of inflammation and subsequent fibrosis of the gland. Hunter realised this danger when he wrote, "the surgeon who is employed should be very attentive that no inconvenience is produced by the truss."

FIG. 6. FIG. 7.



CASE 1.—Right inguinal retained testis and hernia.
Before operation. After operation.

In several cases where testicular gland or thyroid extract has been employed no beneficial results have followed. If the testis does not reach the scrotum by the third year of life, the chances of it coming down unaided are remote.

If, then, the testis has not reached the scrotum by the age of three years, that is the time of election for operative treatment to be carried out. After this age the gland is subjected to retrogressive changes in the parenchyma and sometimes a progressive fibrosis. If it be placed in the scrotum at this early age it is believed that the degenerative changes will be prevented, normal development may occur, and the power of procreation be preserved. The anatomical structures are sufficiently well developed at the third year to warrant easy recognition and so prevent injury. Little is to be gained by delaying operation after this period, for as the age of the individual increases, the chances of success following operation decrease, owing to the morbid changes becoming more pronounced.

Indications for Operation.—In deciding which cases are suitable for operation it will be remembered that the retained testis may be found in three positions: (1) abdominal or iliac, where it lies proximal to the internal abdominal ring and cannot be detected on palpation; (2) inguinal, where it is arrested within the inguinal canal; and (3) high scrotal, where the testis has passed just outside the external abdominal ring.

Cases of iliac retention, which are the least common type, are not, in our opinion, suitable for transplantation to the scrotum as a general rule. The vessels are so short that it is only possible to bring these testes down after their division, and this often results in atrophy of the organ. The vas itself, after repeated observations, does not appear to be correspondingly shortened. When unilateral, these cases should be left alone unless complications require interference. If both sides are affected, it is justifiable to try to bring one testis down into the scrotum. If the operation succeed it affords the patient a chance of fertility; if it fail, and the organ undergoes fibrosis, the remaining testis will furnish the internal secretion necessary for the individual's future development.

In the high scrotal group, where the testis has escaped just outside the external abdominal ring, operation is rarely necessary. Such a testis has been seen to develop normally and should be left untouched unless an accompanying hernia requires treatment. Testes in this situation may undergo spontaneous descent into the scrotum as the child grows and a hernial sac is often absent. It may be advisable to keep such cases under observation until descent is complete. The inguinal group comprises the largest number of cases, and all should receive operative treatment—namely, transplantation of the testis into the scrotum.

Briefly, all cases where the organ is palpable in the inguinal canal should be submitted to operative treatment.

OPERATIVE TREATMENT.

In the operative treatment of this condition three different procedures are available:—

(1) The testis may be excised. Removal of the testis in a child is to be strongly condemned unless some serious complication intervenes. The objection to removing the organ is that even though it may be of little spermatic value, the presence of the internal secretion may justify its retention.

(2) The testis may be replaced in the abdomen. This procedure is advocated by Pannett in view of the large number of failures following scrotal transplantation. This operation offers little hope of the development of the spermatogenetic function and exposes the testis to the risk of malignant degeneration. It is said, however, that the danger of malignant disease is less when the testis lies in the abdomen than in the inguinal canal. Abdominal replacement should only be carried out when the testis cannot be brought into the scrotum.

(3) The testis may be transplanted into the scrotum. This is the ideal operation and places the organ in its natural position, and gives it a chance of developing its full functions.

The cases in this series have all been treated by bringing the retained testis down into the scrotum and placing it in a bed that has been prepared to receive it.

If the operation is to be successful the blood-supply of the testis must not be interfered with, as this will endanger its vitality and subsequent growth. Further, the testis must be placed in the scrotum without tension, otherwise retraction will certainly take place.

The vas deferens usually offers no difficulty in transplanting the gland, and the spermatic cord can generally be sufficiently lengthened by dividing the fascial and muscular bands, which are the chief obstacles in bringing down the testis.

In cases where the blood-vessels of the cord appeared too short, Bevan of Chicago, in 1898 proposed that additional length could be secured by ligaturing and dividing one or more of the spermatic vessels. He considered that the vessels to the vas were sufficient to nourish the testis. This method has the disadvantage that it may be followed by atrophy of the testis, and is not to be recommended except as a last resort.

Technique of the Operation.

The chief stages in the operation that we have adopted are carried out as follows. The skin incision is made just above Poupart's ligament and exposes the whole length of the inguinal canal. The external oblique aponeurosis is divided and the spermatic cord and hernial sac then identified. The sac is separated from the cord near the internal ring, transfixed, ligatured, and cut across, when the stump will slide out of view under the fibres of the internal oblique muscle. This completes the first stage of the operation. The fundus of the sac is now drawn up and freed from its attachment to the bottom of the scrotum. The testis is thus mobilised and can be drawn out of the wound. It is handled as little as possible during this and subsequent manœuvres. The constituents of the cord are next separated with the utmost care, and all fascial and muscular bands stripped up to the internal ring, the cord being put on the stretch. This is a somewhat tedious performance, but is of the utmost importance. The testis finally is held only by the vas and spermatic vessels, and the latter are traced by the finger into the retroperitoneal tissue towards their origin from the aorta and separated from surrounding structures. Similarly, the vas is followed down into the pelvis and further mobilised. The cord having been sufficiently lengthened by these manipulations to enable the testis to be placed in the scrotum without tension, the organ is laid in its new position after a bed has been prepared there for it with the finger. A mattress suture, previously passed through the remains of the gubernaculum and tunica vaginalis below the testis, is tied over rubber tubing outside the scrotum. This anchors the testis into its pouch. There should be no tension on this suture which merely steadies the testis for a time in its new position. The wound is then closed and the patient remains in bed for three weeks.

The operation is one which requires considerable care and patience in its performance, owing to the delicacy of the structures concerned. If sufficient length of the cord can be obtained, after the testis has been freed from the hernial sac and all the fascial bands divided, the final result is generally satisfactory. Handling of the testis must be avoided if possible to prevent injury and postoperative swelling and perhaps subsequent atrophy. In bilateral cases an interval of several months is allowed to elapse so that the result of the first operation can be ascertained before the second is undertaken. If the first operation prove successful, the second testis is brought down; if it fail, it may be wiser to leave the testis alone.

When the testis can be transplanted into the scrotum with its blood-supply intact and not under tension the organ will remain there and develop satisfactorily. An operation is considered to be an anatomical success when the testis maintains its position in the scrotum and hangs freely without adhesions around it. The organ must be of normal consistence and continue to grow as the age of the child increases. The actual height at which the testis lies in the scrotum is of no great importance, for normally one organ lies at a higher level than the other. If the testis feels hard and small, fibrosis has taken place and the operation must be regarded as a failure.

OPERATIVE RESULTS.

During the past five years 50 cases of inguinal retention of the testis have been treated by placing the testis in the scrotum. In 38 cases, one side only was concerned, whilst in 6 cases both sides were submitted to operation. The ages of the children varied from 3 to 14 years, the average being 7 years. All these cases have been carefully followed up, and the time that has elapsed since operation was performed varies from 1 to 5 years. The results are shown in Table II. Thirty-six cases gave good

TABLE II.—*Operative Statistics.*

I. Preoperative Data.

Number of patients	44
Testes operated upon	50
Involving right side	21
Involving left side	17
Bilateral cases	6
Age at operation	3–14 years.
Average	7 ,,
Position of retained testis—inguinal retention.	

II. Postoperative Data.

End-results in 50 cases of retained testis.

A. *Successful: 36 cases.* Testis free in scrotum. Normal size and consistency	72 %
B. *Failures: 14 cases.* Testis retracted and/or atrophic	28 %
C. *Bilateral cases.* (1) Both testes in scrotum in 3 cases. (2) One testis in scrotum in 3 cases.	
D. *Hernia present in 46 cases*	92 %
Spermatic vessels divided in 4 cases.	
Atrophy of testes in all 4 cases	100 %
Mortality	Nil.

anatomical results, 14 were failures. Two cases occurred in twins, and in both brothers a retained testis, accompanied by a hernial sac, was found on the right side.

The operation as described has proved satisfactory (Figs. 6 and 7) and there has been no mortality in the series.

CONCLUSIONS.

In conclusion, it appears justifiable to advocate the transplantation of the inguinal retained testis into the scrotum during the first years of life.

As a result of a careful histological investigation the retained testis has been found to be very similar to the scrotal organ in early childhood.

Good results after operative treatment are not exceptional, and there is a reasonable prospect that the transplanted testis will acquire the spermatogenetic function at puberty, provided the organ be placed in the scrotum before morbid changes have occurred. The presence of a living testis in the scrotum in a considerable percentage of cases justifies the performance of the operation. It must be added, however, that as yet there has been no mortality in the series quoted, and consequently no histological confirmation of spermatogenesis in the transplanted organ.

We wish to express our sincere thanks to Prof. J. S. B. Stopford, in whose department much of the work was carried out, for his help, advice, and kindly criticism. We also wish to thank Sister M. McMurtrey for her assistance in collecting the cases after operation, Mr. A. Teesdale and Mr. H. Gooding for the excellent photographs of the patients and specimens.

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(*Continued at foot of next page.*)

THE USE OF LUGOL'S IODINE IN EXOPHTHALMIC GOITRE.

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A STUDY of the effect of iodine in exophthalmic goitre is of interest from two points of view. In the first place, it is important for the clinician to know its exact value in treatment and to what extent different types of the disease will respond. In the second, since iodine does cause a change in the metabolism, it is possible that a study of this effect may lead to a clearer understanding of exophthalmic goitre and throw light on its causation.

Historical Summary.

The use of iodine by the mouth in hyperthyroidism was for many years taboo. This was largely the result of Kocher's [1] observations on the treatment of simple goitre with iodine. He showed that the firmer and more nodular types thus treated quickly developed hyperthyroidism and he condemned its use both in adenomata with hyperthyroidism and in true Graves's disease. This condemnation persisted until a few years ago and still lingers.

Marine and Lenhart,[2] however, and later Neisser [3] treated cases of Graves's disease with small doses of potassium iodide with very encouraging results, and in 1921 Loewi and Zondek [4] confirmed these observations. Further, in three cases they estimated the oxygen consumption after iodine treatment and found that it was reduced to normal.

Iodine then began to be used extensively in America as a preparation for partial thyroidectomy in exophthalmic goitre. Plummer and Boothby [5 6] gave it in the form of Lugol's solution to 600 cases. Ten minims were given daily for a few days to a fortnight before operation and in very severe cases the dose was increased. In 40 careful observations of the clinical condition and basal metabolism were recorded. The results were highly satisfactory, for they found that two-thirds of those treated were greatly benefited. In these the nervous and gastro-intestinal symptoms disappeared in a few days, the pulse was slowed, the signs grew less, and the basal metabolic rate was reduced to normal. The most striking and definite results were obtained in the most severe cases. In the remaining third the results were less good, but very few failed to improve. They emphasised the value of iodine before operation in reducing the surgical mortality and commented on the fact that the only surgical death from exophthalmic goitre that occurred in seven consecutive months at the Mayo Clinic was the only case to which lugol had not been given at the time of operation. They considered that iodine should with few exceptions be used only as a temporary measure to bring the patient into a safe condition for surgical treatment.

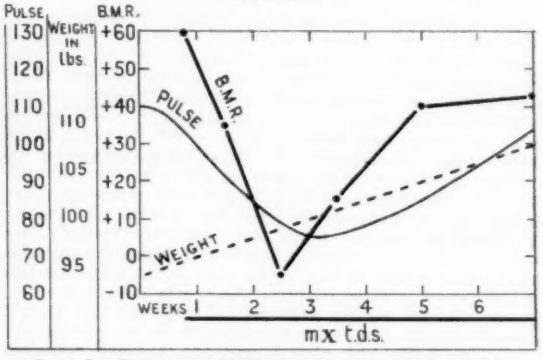
Sturgis and Greene [7] studied two series of cases, to one of which lugol was given before operation. They showed that when the basal metabolism was reduced to normal with lugol before operation the loss of weight after operation was slight or there was an actual gain. The untreated cases all lost a great deal of weight.

Reinhoff [8] examined the histological changes in the thyroid gland after lugol treatment, and showed that the clinical improvement and lowered rate of metabolism are directly associated with the change from the typical histological picture of exophthalmic goitre to a resting colloid state. He concluded that an artificial remission of the disease was produced by iodine. This, he thought, is probably what also takes place during a normal remission of the disease and possibly explains the confusing histological appearances that have been described.

In England iodine has only been used in exophthalmic goitre during the last few years. At a discussion on the treatment of exophthalmic goitre in 1922 iodine was vetoed as dangerous for those who showed any signs of hyperthyroidism. Only one speaker, Prof. David Drummond,[9] said that he was accustomed to give potassium iodide in small doses to these patients, often with considerable benefit.

Dr. R. Fraser [10] used iodine at St. Bartholomew's Hospital. His results agreed with those of workers in America as to its striking initial effect. He found that the improvement did not as a rule persist, and cessation of iodine was followed by immediate relapse. The iodine was given in the form of a 10 per cent. solution in alcohol and the optimum dosage at the onset of treatment was found to be 15 minims a day, though this was reduced to 3–6 minims daily as soon as the initial improvement had taken place.

FIG. 1.



CASE 1.—Severe exophthalmic goitre. Female aged 21.

Too large a dosage made the patient worse instead of better.

S. J. Cowell and E. Mellanby observed the effect of iodine in the form of potassium iodide on eight cases of exophthalmic goitre, and their observations agreed with those of previous workers. They found no grounds for regarding iodine treatment as curative, but considered it a valuable adjunct to previous medical and surgical treatment, and suggested that the optimum dosage might be found to be in the region of one-tenth of a grain of potassium iodide daily for the majority of cases.

The Present Investigation.

In the series to be described, Lugol's iodine was given to 19 cases of hyperthyroidism and its effect on the clinical condition was observed. In 17 cases the basal metabolism was watched concurrently, and in five cases observations were made on the sugar tolerance. In all of them the condition was apparently true exophthalmic goitre, but it is possible that the three who reacted badly may have been atypical examples of toxic adenomata.

All the patients were kept in bed during the first few weeks of treatment and were given the ordinary hospital diet equivalent to about 2200 calories. Later treatment was continued while they attended as out-patients at intervals of a week or a fortnight.

HUNTERIAN LECTURE: REFERENCES.

(*Continued from previous page.*)

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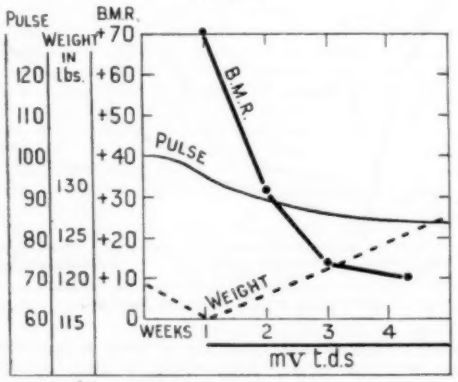
In estimating the basal metabolic rate the samples of air for analysis were collected by the Douglas bag method. This was done in a large general ward, but although screens were used to cut off outside excitements as far as possible, the conditions were not ideal. The patients had no food for 12 hours before the test.

FIG. 2.



CASE 2.—Severe exophthalmic goitre. Female aged 31.

Dosage and Duration of Treatment.

Five or ten minims of Lugol's solution (an aqueous solution of 5 per cent. iodine and 10 per cent. potassium iodide) were given three times a day during treatment. The larger dose was given at the beginning of treatment, but never for longer than six weeks, and usually for a shorter time. The duration of treatment and dosage is given in the table opposite. In most cases 5 minims three times a day seemed a safe and efficient dose to be continued without remission for several months, and this was given also to out-patients with benefit and no ill-effects.

Results of Treatment.

1. *Effect on Symptoms and Physical Signs.*—During the first few weeks the subjective symptoms of palpitation, nervousness, heat, and gastro-intestinal discomfort were greatly diminished or disappeared entirely. The pulse became slower, the tremor less, and the patients were cooler, more composed, and slept better. The maximum improvement was reached after from ten days to six weeks continuous iodine. After a few weeks the exophthalmos was usually less and the gain in weight had begun. If iodine was continued after this period the response varied in different patients. Some relapsed slowly but the disease did not reach its former severity while they continued to take iodine; others remained stationary in a greatly improved condition. Three cases showed no tendency to relapse after continuous treatment for five months, but these all retained signs of mild hyperthyroidism although the basal metabolism remained normal in two of them.

2. *Effect on Body-weight.*—Most cases showed a steady increase in weight after the first week. In this series 14 out of 19 gained weight while taking iodine. Case 12 was kept at rest in bed for four weeks without treatment and lost 7 pounds. She was then given iodine for 12 weeks and steadily gained 17 pounds. The gain in weight did not always synchronise with a fall in basal metabolic rate. In Case 12, again, while iodine was given for 12 days the weight increased slightly and the basal metabolic rate fell from +70·3 per cent. to − 1 per cent. During the next two months the basal metabolic rate rose from − 1 per cent. to + 60 per cent., and there was a gain in weight of 13 pounds. In Case 1 the basal metabolic rate fell from − 65 per cent. to + 5 per cent. in 11 days and the weight increased by 2 pounds. Iodine was continued for the next three months and during this time the basal metabolic rate rose again to + 46 per cent., and the weight increased 24 pounds. In most instances, however, a fall in basal metabolic rate is accompanied by a rise in weight.

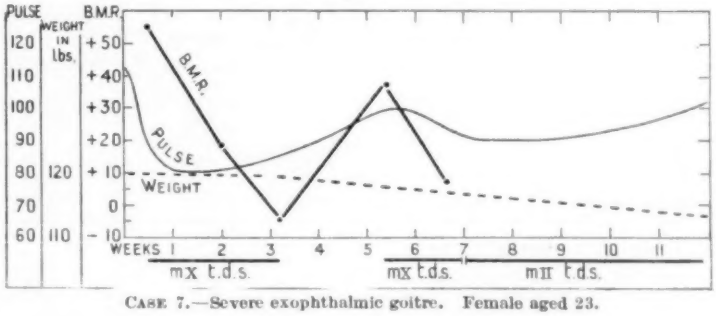
TABLE I.—*Showing the Effect of Lugol's Iodine on the Basal Metabolic Rate in Cases of Exophthalmic Goitre.*

Case No.	Dose of lugol.	Time.	B.M.R. per cent. Before.	B.M.R. per cent. After.	Subsequent progress.
	t.d.s.		%	%	
1	ℿx.	10 days	+60·5	− 5·5	Lugol ℿv. t.d.s. 4 mhs. B.M.R. + 46 %.
2	ℿv.	3 wks.	+70·7	+10	Lugol ℿv. t.d.s. 5 mhs. B.M.R. − 17 %.
3	ℿv.	6 wks.	+39	+29	Lugol ℿv. t.d.s. 6 mhs. B.M.R. + 21 %.
5	ℿv.	9 mhs.	High		Lugol ℿv. t.d.s. 9 mhs. B.M.R. − 15 %.
6	ℿx.	2 wks.	+37·1	+10·4	Developed mental symptoms and discharged himself.
7	ℿx.	2 wks.	+54	−4·3	Lugol continued but slight relapse. Op.
8	ℿx.	2 wks.	+32	− 1	No further lugol. Op.
9	ℿv.	1 wk.	+42	+ 6	No further lugol. Op.
10	ℿv.	10 days	+49	+36	Failed to react. Op.
11	ℿx.	6 wks.	+67	− 8	No further lugol. Op.
12	ℿx.	2 wks.	+703	− 1	Lugol ℿv. t.d.s. 7 wks. more. B.M.R. + 60 %.
13	ℿv.	3 wks.	+38	− 3	Lugol ℿv.-x. 4 wks. more. B.M.R. + 13 %. Operation.
14	ℿv.	10 days	+56	− 3	Not followed up.
15	ℿv.	5 „	+50·8	− 8·3	Operation.
16	ℿv.	8 wks.	+22	−17·7	Operation.
17	ℿii.	3 mhs.	+39	+ 3·2	Operation before lugol treatment.
18	ℿx.	12 days	+37	+10·8	Lugol ℿx. t.d.s. 3 wks. more. B.M.R. + 14 %. Slight relapse. Op.

B.M.R. = Basal metabolic rate. Op. = Operation.

CASE 4.—Aged 6. B.M.R. not estimated, but great clinica improvement on ℿi.-ℿii. t.d.s. for ten weeks.

FIG. 3.



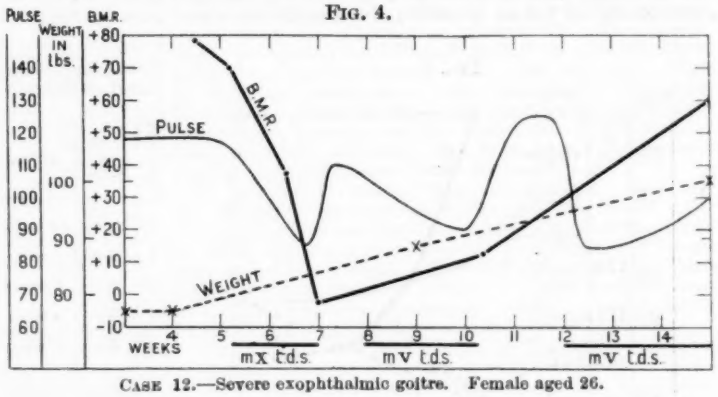
CASE 7.—Severe exophthalmic goitre. Female aged 23.

The five cases who lost weight did not do so well in other ways as those who gained. Three relapsed quickly after moderate initial improvement, one failed to improve at all, and the fifth improved clinically for a fortnight, and then developed acute mental symptoms. It appears to be a useful working rule that patients who fail to gain weight without apparent additional cause during the first few weeks of treatment will not react well in other ways and no very sustained improvement may be expected even if iodine is continued.

3. *Effect on basal metabolic rate* is shown in Table I

The initial lowering of the basal metabolic rate to normal was very constant and occurred in 13 out of the 14 cases in which it was estimated. Two to three weeks' treatment was the average time required for this. When iodine was continued after this point of maximum improvement the basal metabolic rate rose again in most. In two cases only, after six and nine months' treatment respectively, was it still below normal. Lugol's solution was also used successfully in one patient whose symptoms and signs, though relieved by partial thyroidectomy, were not cured. Six months after operation the basal metabolic rate was still + 39 per cent. Iodine treatment was then given for three months and at the end of this time the basal metabolic rate was + 3 per cent., and she appeared to be cured.

FIG. 4.

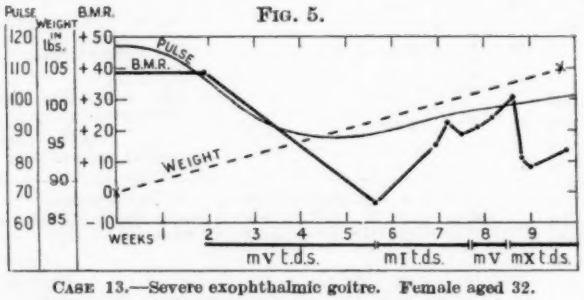


CASE 12.—Severe exophthalmic goitre. Female aged 26.

Intolerance.

No cases of iodism were noticed. Increased nervous symptoms may have been due to iodine in three patients. The first was a woman with moderately severe hyperthyroidism which had supervened on an adenoma of many years' standing. Thirty minims of Lugol's solution in two days caused a marked increase in nervous symptoms. These abated when treatment was stopped.

FIG. 5.



CASE 13.—Severe exophthalmic goitre. Female aged 32.

The second (Case 6) appeared to be a moderately severe example of true exophthalmic goitre. Nervous symptoms were unusually predominant and the thyroid was exceptionally firm and nodular. Only slight exophthalmos was present. After doing well for a fortnight (see Table I.) he became maniacal and had to be controlled with morphia and hyoscine.

Case 19 was a severe example of true exophthalmic goitre with a large, firm thyroid and moderate exophthalmos. Ten minims of Lugol's solution were given three times a day for three weeks and during this time the thyroid became extremely firm and the clinical signs and symptoms improved only slightly. She then became excitable and developed illusions of persecution. Iodine was stopped and sedatives controlled the condition which slowly subsided.

The presence of an abnormally firm or nodular thyroid and exceptionally severe nervous symptoms appear to be contra-indications to the giving of iodine. Failure to gain weight while taking it is another indication for caution. Failure to improve is an indication for reducing the dose.

Effect of Iodine on Sugar Tolerance.

The profound effect of iodine on the basal metabolic rate in exophthalmic goitre suggested that it might also influence the decreased sugar tolerance in that disease.

TABLE II.—*Showing Sugar Tolerance Before and After Treatment with Lugol's Iodine.*

—	B.M.R. (per cent.)	Resting.	Blood-sugar after glucose.				Urine after test.
			30 mins.	60 mins.	90 mins.	120 mins.	
CASE 6.							
Before treatment	+37	0·08	0·26	0·32	0·35	0·32	Sugar present.
After lugol ℥x. t.d.s., 9 days	+10·4	0·12	0·21	0·19	0·19	0·11	Trace of sugar.
CASE 7.							
Before treatment	+54	0·06	0·11	0·16	0·27	0·25	,, ,,
After ℥x. t.d.s., 10 days..	+18·4	0·09	0·13	0·17	0·17	0·19	,, ,,
,, ,, 20 ,, ...	− 4·3	0·08	0·18	0·15	0·19	0·12	,, ,,
After lugol stopped, 12 days	+37	0·09	0·11	0·16	0·28	0·31	Sugar present.
,, ,, resumed, 10 days	+ 7	0·09	0·15	0·23	0·27	0·22	,, ,,
CASE 8.							
Before treatment	+32	0·1	0·2	0·22	0·2	0·21	,, ,,
After ℥x. t.d.s., 10 days..	− 1	0·09	0·15	0·16	0·17	0·2	Trace of sugar.
After partial thyroidectomy, 14 days ..	+18	0·1	0·14	0·13	0·14	0·14	No sugar present.
After lugol ℥v. t.d.s., 10 days	+12·5	0·11	0·17	0·2	0·18	0·14	No sugar.
CASE 5.							
After lugol ℥v. t.d.s., 9 months.. ..	−15	0·12	0·2	0·28	0·24	0·21	Sugar present.
CASE 19.							
Before treatment	+37·2	0·12	0·23	0·23	0·12	0·11	Trace of sugar.
After lugol, ℥x. t.d.s., 11 days	+10·8	0·13	0·23	0·26	0·23	0·12	,, ,,

It has been shown by Sangar and Hun [12] that in conditions of hyperthyroidism sugar, when offered to the tissues, is burned with great avidity and the increased utilisation of carbohydrate after carbohydrate ingestion along with the maintained high blood-sugar curve point to an inability to store

glucose. This is most likely due to an effect on the storage mechanism of the liver. Confirmation of this is found in the effect of thyroid feeding in depleting the liver of glycogen [13] and by the fact that thyroid feeding in the normal individual may lead to the development of a similar type of sugar curve to that found in exophthalmic goitre.

If this impaired sugar tolerance were the result of altered thyroid secretion it seemed possible that the effect on the basal metabolic rate might be accompanied by an improvement in sugar tolerance. It is suspected that both thyroxin and adrenalin are able to inhibit the storage of glycogen by the liver, and to cause the breakdown of previously formed glycogen into sugar. Possibly iodine, by altering the secretion of the thyroid gland, may indirectly prevent its inhibitory effect on the storage mechanism and thus make storage more efficient and increase the sugar tolerance.

In four cases of this series the sugar tolerance was estimated by MacLean's method before and after treatment with Lugol's solution. The basal metabolism was also estimated before each test. In the fifth the sugar tolerance and basal metabolism were estimated after nine months' continuous iodine treatment. The results in Table II. show a marked improvement in one case, a slight change in two, and no change in one. The sugar tolerance in the fifth was still greatly impaired after nine months' iodine, although the basal metabolism was normal. Iodine appears to have slight influence on the impaired sugar tolerance in hyperthyroidism. It is possible that it may cause a transient initial improvement which coincides with the lowering of the basal metabolic rate.

Conclusions.

Lugol's iodine given to cases of true exophthalmic goitre has the following effects:—

The symptoms and signs are lessened. A point of maximum improvement is reached after from two to six weeks' continuous treatment. Most cases then relapse slowly even though iodine is continued. Clinically a low grade hyperthyroidism persists.

The *weight* is increased. The *basal metabolic rate* is reduced to normal limits after from one to six weeks. In most cases it then rises slowly again even if iodine is continued. Cessation of iodine is followed by an immediate rise. The *sugar tolerance* appears to be slightly improved in some cases.

Five to ten minims of Lugol's iodine three times a day is a safe and efficient dose in most cases for the first few weeks' treatment, and 5 minims may be continued safely and with benefit to some patients for six months. An increase of symptoms, however, during treatment is an indication for a smaller dose. An abnormally firm thyroid gland, exceptionally severe nervous symptoms, or loss of weight during the first few weeks of treatment are warnings that Lugol's iodine may be dangerous.

In conclusion, I should like to thank Dr. A. E. Russell, Dr. E. F. Buzzard, Prof. H. MacLean, Dr. M. A. Cassidy, and Dr. R. C. Jewesbury for permission to investigate cases in their wards at St. Thomas's Hospital.

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THE GROWTH OF TUMOUR IN TISSUES EXPOSED TO X RAYS AND RADIUM.*

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AND
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PREVIOUS experiments have shown that rats, which have been exposed to repeated small doses of X rays and afterwards inoculated with Jensen's rat sarcoma (J.R.S.), do not grow the tumour quite so quickly as do normal rats.[1] Murphy [2] found that after purely local irradiation of the skin of mice *intra*-cutaneous inoculation of tumour rarely grew, but in the case of *sub*-cutaneous inoculation there was very little difference between the growth in the treated mice and the controls. As these observations have some bearing on the therapeutic uses of X rays and radium, more experiments on these lines have been carried out; and from the data in the following paper it seems pretty clearly indicated that sarcoma of the rat, implanted subcutaneously, does not grow at the normal rate in a region which has been given a suitable dose of radiation.

FIG. 1.

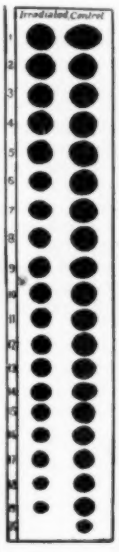


FIG. 3.

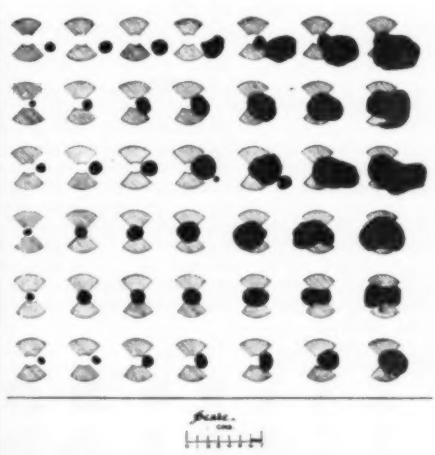


FIG. 1.—Left column = irradiated animals. Right column = normal animals.

FIG. 3.—Preferential growth of tumour into non-irradiated tissue.

Preliminary Experiments.

Young rats were inoculated on the flank with small pieces of J.R.S.; three or four days later the graft was covered with a lead disc 1 mm. thick and 9 mm. diameter, and the surrounding tissue exposed

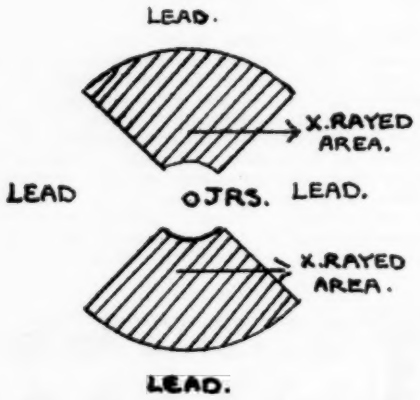
Length of irradiation.	Irradiation.	Average volume.		Ratio.
		Experimental.	Controls.	
30 min. once	After inoc.	21·0	35·2	0·6
30 ,, twice	,, ,,	0·9	16·6	0·54
30 ,, ,,	,, ,,	2·6	13·2	0·20
45 ,, once	Before ,,	0·4	3·8	0·10
50 ,, ,,	After ,,	10·4	21·5	0·48

* A paper read at the Section of Electro-therapeutics, Royal Society of Medicine, on April 8th.

[1] Russ, Chambers, and Scott: Proc. Roy. Soc., B., vol. xcviii., 1921. [2] Murphy, J. B.: Jour. Exp. Med., 1921 et seq.

to a square radium capsule for 30, 45, or 50 minutes. The capsule used was 1·8 cm. square, was screened by 0·2 mm. of silver and contained 30 mg. $RaBr_2 2H_2O$. At half-time it was turned through an angle of 45 degrees, so that the irradiated area might be more or less circular. In some cases control tumours were grown in the same rats, in others in

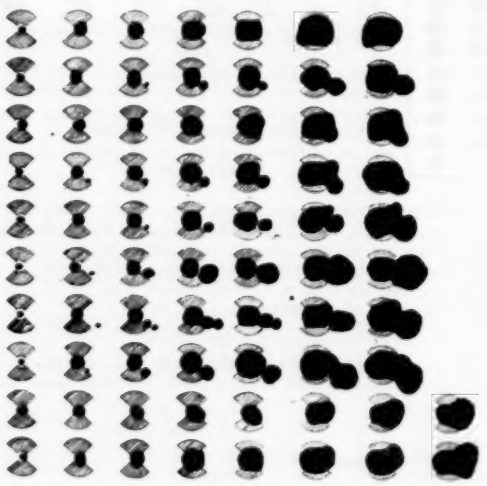
FIG. 2.



different rats; but in either case the control tumours were always on the average the larger. (See table.) A single exposure of 30 minutes produced epilation and permanent loss of pigment in the hair.

In one experiment the capsule was screened with 1 mm. of aluminium, and the length of the exposure increased to 60 minutes. The silhouettes in Fig. 1 correspond to one-seventh of the actual sizes of the tumours 26 days after inoculation; the volume of the tumours in the irradiated areas was 0·52 that of the controls.

FIG. 4.



Preferential growth of tumour into non-irradiated tissue.

All these observations on more than 100 rats suggested that irradiation of the skin distinctly hindered the growth of the tumour, but this point was tested in a more exacting fashion.

Final Experiment.

Each rat was covered with lead (2 mm. thick, enough to stop the X rays used in these experiments), except for two areas the actual size of which is given here. (Fig. 2.) The rats were then exposed to measured doses of X rays while under an anæsthetic. In some cases they were inoculated with J.R.S. before the X ray exposure, but in most cases this was done three or four days afterwards, as nearly as possible into the middle of the screened area directly between the two exposed sectors.

Measurements were taken and charts made on squared paper twice a week; the charts all showed the same tendency; the J.R.S. grew much more readily in the normal than in the irradiated areas. In many cases where the irradiated area was eventually invaded by the tumour the growth was much flatter than in the normal regions.

The following series was carried out, Figs. 3 and 4 only being reproduced here:—

	Exposure to X rays.		Subcutaneous inoculation.
(Fig. 3.)	30 minutes	3 days	later.
(Fig. 4.)	20 ,,	,,	before.
	45 ,,	,,	later.
	30 ,,	,,	before.
	45 ,,	,,	1 month later.

All the rats in these experiments were inoculated in the flank; normally J.R.S. in this position grows more or less spherically with a tendency to track into the axilla and towards the chest; one X rayed sector was between the nodule and the axilla, and the others directly below it. The tumour grew more readily towards the chest and avoided the X rayed area ear the axilla (vide Figs. 3 and 4), so another batch of rats was inoculated and irradiated for 30 minutes, and the X rayed areas turned towards the chest and back. The results of this experiment are charted in Fig. 5, and show that there is exactly the same thing happening, the tumour growing much more readily in the normal tissues than in the X rayed, irrespective of the position.

FIG. 5.

Preferential growth of tumour into non-irradiated tissue.

The X rays used in all these experiments were generated from a Coolidge tube, with an alternative spark gap of 5 cm. between spheres 5 cm. diameter. Under the same conditions of output and distance it takes about 50 to 55 minutes to give a lethal dose to J.R.S.; the effect of doses of 20 to 45 minutes on the skin ranges from partial epilation to slight blistering.

THE SUFFOLK HOSPITAL.—Last year the East Suffolk and Ipswich Hospital Contributory Scheme produced over £14,000, an increase of 79 per cent. over the preceding year. Land has been purchased for the enlargement of the West Suffolk Hospital at Bury St. Edmunds. Owing to pressure the same ward has to be used for medical and surgical cases, there are insufficient beds for female patients, and the out-patient accommodation is declared in the annual report to be "grossly inadequate."

DIMINUTION IN VENEREAL DISEASE IN BIRMINGHAM. The medical report for last year of the Birmingham and Midland Hospital for Skin and Urinary Diseases states that the number of patients with venereal diseases again shows a diminution. This is largely due to a striking decrease in the prevalence and severity of such diseases. The report adds that in the whole of the Midlands there appear to be fewer than 30 beds permanently allocated to skin diseases, a number which is "pathetically insufficient."

OUTBREAK OF ENTERITIS NEAR GLASGOW.

A BACTERIOLOGICAL ACCOUNT.

BY W. R. WISEMAN, M.B., B.Sc., F.R.F.P.S. GLASG.

(From the Public Health Laboratory, Corporation of Glasgow.)

IN October, 1926, throughout an area bordering on the Clyde, a large number of persons (over 80) were seized with enteritis, the cases occurring over a period of some weeks. The duration of illness of the patients who came under bacteriological notice was short—four to seven days—with the exception of one who suffered three relapses, and one, aged 70, who was ill for three weeks. Adults as well as children were involved. It was suggested that the milk-supply should be scrutinised, and accordingly the first six specimens of fæces submitted for bacteriological examination comprised three from patients in the village and three from persons on the farm supplying the area with milk. Five of these six specimens yielded the organism which was the cause of the trouble. The various organisms will be referred to here as the bacilli of Lang, Arneil, and Stewart (the villagers), and of A.B. 2 and A.B. 3 (the wife and daughter respectively of the farmer A.B.). A.B. delivered the milk personally, but his stools failed to yield the organism on two examinations. It is interesting and of some importance that A.B. 2 had never exhibited any symptoms, though the organism (in small number) was got on the first examination. A.B. 3 had had diarrhœa at the beginning of October, and her organism was found on the first examination, 13 days after the onset. Besides those five organisms three samples of blood sera fell to be examined—viz., from A.B., Lang, and another patient Lyle.

During the first few days of incubation the reactions of all the five organisms in the biochemical tests were identical with those of the dysentery bacillus of Flexner, but after the first week or so these reactions altered so as to become the same as those characterising the organisms of Sonne's Group III. of dysentery bacilli.[1] It is not proposed here to describe these changes. Attention having been directed to these two groups during the investigation, it follows that the serological work may best be described under three heads: (1) Relations with Flexner Y bacilli and sera. (2) Results of the interaction between the isolated organisms and the patients' sera. (3) Relations with Sonne III. immune sera.

It must be stated at this point that on the plate culture from Stewart one or two rough, dry colonies appeared among the predominating smooth, moist ones. These were the same organism. Stewart "rough" was agglutinable throughout in a manner that contrasted strongly with Stewart "smooth" and with the other members of the series. As it was agglutinable even by a Flexner V serum (1/100 in 24 hours, with no reaction in 1/25 in five hours) it is not necessary for the purposes of our conclusions to take the figures associated with it at their actual face value. On the other hand, rough variants (if this be one) of the Sonne III. type of organism may have it as an inherent property to be somewhat more sensitive to specific agglutination than the type colony, and indeed the writer has noted this phenomenon in relation to other species of organisms. Time was not given to work out this point. Rough variants have not hitherto been noted in connexion with the Sonne III. group.

1. (*a*) Artificial agglutinating sera for *B. dys.* Flexner V, X, Z, and Y (titres 200) failed to agglutinate the bacillus of Lang and of A.B. 2 in dilution 1/25 in 24 hours at 52° C. As already noted, *B.* "Stewart" (rough) reacted in dilution 1/100 of a Flexner V serum in 24 hours. (*b*) Lang's serum and Lyle's serum (both taken at a favourable period) were both negative to *B. dys.* Flexner V in 22 hours, the former in dilution 1/25, the latter in 1/50. These tests were sufficient to rule out the Flexner Y group.

2. The results of agglutination tests with patients' sera and three organisms of the series as well as with control cultures are best seen in a table. Bacilli B 4, H 3, and S 269 are members of the Sonne III. group.

TABLE I.—*End-points with Patients' Sera.*

Organism.	Lang.	A.B.	Lyle.
Lang.	< 25	< 12	< 25
Stewart	< 25 smooth col.	< 12, in 5 hours. 200 trace, rough col.	< 25, in 5 hours. 200 +, rough col.
A.B. 3	< 25	< 25	< 25
B 4	80 in 5 hours.	Not done.	80 in 5 hours.
H 3	50., trace in 5 hours.	Not done.	Not done.
S 269	25, trace.	< 25	25, trace.

These tests were made at 52° C. and were read by hand-lens, except in the case of B 4, which was visible to the naked eye, and where not otherwise stated they proceeded for 22 hours in the water-bath. If we leave in the meantime, as suggested above, the reaction of Stewart's rough colony, it is seen that the patients' organisms were not agglutinable by the sera of the patients at the time the organisms were isolated. Accordingly, the modified reactions given by the three stock organisms created a difficulty in view of the behaviour of the patients' bacilli, for no doubt at all was entertained at any stage that these latter organisms represented the cause of the outbreak. On the very few occasions on which the writer had met with Sonne III. bacilli the organisms were agglutinable by the sera of the patients, provided the case was neither chronic nor rapidly fatal. It is to be noted that we are dealing with organisms the determination of whose occurrence has been very rare in the West of Scotland, and even in Great Britain, and therefore there has been little opportunity to cultivate familiarity with differing properties of different members of the Sonne III. group from their isolation onwards. Let us now compare with Table I. the behaviour of Lang's bacillus and of the bacillus of A.B. 3 with the original specimen of Lang's serum two months after the isolation of the organisms (Table II.).

TABLE II.

Lang's serum.	Dilutions.			Serum control 1/25.
	25	40	100	
V. B. Lang	+	Strong trace.	Faint trace.	—
V. B. A.B. 3.. ..	Strong trace.	Trace.	—	—

TABLE III.

Serum A.B.	Dilutions.		Serum control 1/25.
	25	40	
V. B. Lang	—	—	—
V. B. A.B. 3.. ..	—	—	—

These reactions were read by hand-lens and were given in four hours. They demonstrate (1) that the serum originally supplied and used for the tests of Table I. contained agglutinins specific for the organisms of the outbreak; and (2) that organisms which originally gave no response in agglutination tests became agglutinable after a period of residence on an artificial nutrient medium.

[1] Sonne, C.: Centralbl. f. Bacteriol., Orig., 1915, lxxv., 408.

These facts having been established, it was important to return to the serum of A.B. (the farmer and distributor of the milk who, however, was not known to have been a sufferer), and to test the two months' old cultures with it as originally supplied (Table III.).

The minus sign means no reaction. Tests read by lens after four hours in water-bath and overnight on bench. These results confirmed the negative findings with the stools of A.B. and, excluding accidental contamination of his hands and clothing by other members of the household, were sufficient to declare him free from infectivity. These last tests, again, served to discount the reaction given by Stewart's rough colony in Table I., for serum A.B. would otherwise now have been agglutinating, say, *B.* "Lang."

3. Relations with immune sera prepared from different strains of Sonne III. bacilli: three sera were used, called here S 269, H 5, and D. (*a*) Agglutination results obtained early in the investigation are shown in Table IV.

TABLE IV.—*End-points with Immune Sera.*

Organism.	S 269 (titre 12,500)	H 5 (titre 5000)	D (titre 12,500)
Stewart ("rough") ..	5000	< 500	Not done.
Lang	< 500	< 500	< 500
Arneil	< 500	< 500	< 500

500 was the lowest dilution used, the readings being made by lens after four hours at 52° C.

(*b*) 1. Agglutination results obtained after the organisms had been on artificial media for approximately nine weeks: the bacilli of Stewart ("smooth"), Arneil, Lang, A.B. 2, and A.B. 3 were each agglutinated by Serum S 269 to full titre—namely, 12,500—the serum controls being negative in each case in 1/25, and the results read as in Table II. All the flocculations were very fine, an appearance not uniformly given by all members of the Sonne III. group.

(2) *Saturation Experiment.*—The aim of the experiment is to ascertain whether any of our organisms is able to withdraw from a Sonne III. immune serum practically all its power to agglutinate the bacillus used to prepare the serum, and incidentally other bacilli of the same group. For this purpose serum S 269 and bacillus A.B. 3 were used, and the results of the tests are shown as fractions. The numerator represents the end-point of agglutination with the treated serum upon the organism named, the denominator that with the untreated serum. Serum S 269 saturated with bacillus A.B. 3—

On S 269	250/12,500	On M 2	250/12,500
On S 268	250/12,500	On H 5	125/12,500

The lowest dilution used was 1/125. It is seen that absorption of agglutinins is for practical purposes complete. The experimental results now presented are sufficient to demonstrate that the organisms causative of this outbreak are to be placed as members of Group III. of Sonne's classification of dysentery bacilli.

Comments.

The occurrence in this country of the type of organism we have been dealing with has hitherto, so far as we know, been rare. Of course, it is easy to conceive that if met with it might readily have been taken to be an inagglutinable or atypical Flexner bacillus. A report of the Medical Research Council for 1920[2] states that the type had not yet been recognised in this country. One of the main objects in making this communication is to emphasise the possibility of the occurrence of inagglutinable forms of this organism, when there may be some hesitation and delay in naming the species.

[2] Med. Res. Council, Spec. Rep. Ser., 1920, No. 51, p. 54.

But administrative action is by no means conditioned by such delay. For this purpose the naming of species is of secondary moment. During the period when no serological information of a convincing kind was forthcoming, a report was made to the administrative authority, the conclusion of which was as follows. "The organisms of the present series do not so far appear to be distinguishable by cultural methods from the Sonne III. group. Briefly, the grounds on which it is held that the organisms of our series were causative of the outbreak are as follows: (1) they are of a dysenteric type; (2) to the minutest details they are all identical, possessing certain cultural characters which, were it not that these are also possessed by the Sonne III. group and by it only, might be described as almost if not quite unique; (3) although they are of quite uncommon occurrence, they were cultivated from the specimens submitted with a striking, almost processional regularity." Thus in the presence of, and in spite of a temporary difficulty that the bacteriologist may find in giving a name to certain strains of this group, the grounds and modes of administrative procedure, so far as the laboratory can indicate them, are really as satisfactory and abundant as they would be if the organisms had furnished all the data usually considered necessary for scientific classification.

Any epidemiological facts relative to the outbreak as it actually happened were furnished by Dr. A. Johnstone, Health Department, Dumbarton, as factors bearing on the bacteriological work, and I am indebted to him for any facts of this kind which may have necessarily appeared in the introduction to this communication.

Clinical and Laboratory Notes.

TWO CASES OF UNDULANT FEVER OCCURRING IN ENGLAND.

BY J. BAMFORTH, M.D. LIVERP., M.R.C.P. LOND.,
ASSISTANT BACTERIOLOGIST, ST. THOMAS'S HOSPITAL.

IT has recently been pointed out by G. S. Wilson and Muriel M. Nutt[1] that *Bacillus abortus* is frequently present in cows' milk in certain English counties. The possibility of human infection from this source is therefore of some importance. Cases of *B. abortus* infection in man have been described in various parts of the world by different authors and the following records may prove of interest.

CASE 1 is that of a woman aged 63, who had never been abroad and was domiciled in London. In July, 1925, she went to live in a small village in Essex and remained there until Christmas, only occasionally coming to London for business purposes. She stated that her illness commenced about the end of November, 1925. She was unable to concentrate on her work and felt tired and ready for sleep. There was loss of appetite, and the feet became swollen and tender. On her return to London in June, 1926, she became much worse and experienced severe headache, sore-throat, and frequent attacks of shivering and perspiration. These symptoms continued and, in addition, there was considerable abdominal discomfort from flatulent distension. The attacks of perspiration persisted and were accompanied by a rise of temperature in the evening.

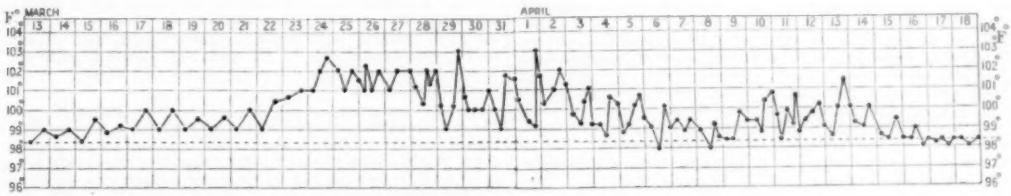
On March 31st she became a patient in a nursing home under the care of Dr. C. R. Box. Palpation of the abdomen showed a certain amount of tenderness in the epigastrium. There was no enlargement of the spleen. A blood examination done on April 1st gave the following results: hæmoglobin, 62 per cent.; total red cells, 5,310,000; total leucocytes, 6250 per c.mm., with polymorphonuclears 34 per cent., lymphocytes 62 per cent., and large hyalines 4 per cent. Blood culture and agglutination tests were done on the same day. The blood culture proved to be sterile, but the serum showed positive agglutination against *Micrococcus melitensis* to a titre of 1–1000 and against *B. abortus* to

[1] Jour. Path. and Bact., 1926, No. 2, xxix., 141–148.

1–2000. Against *Bacillus typhosus* and *paratyphosus* A, B, and C, the reactions were completely negative. Cultures made from the urine were negative.

A record of the temperature from March 13th to May 3rd was obtained and the greater part of this is shown in Fig. 1. The undulant character of the fever is not well shown.

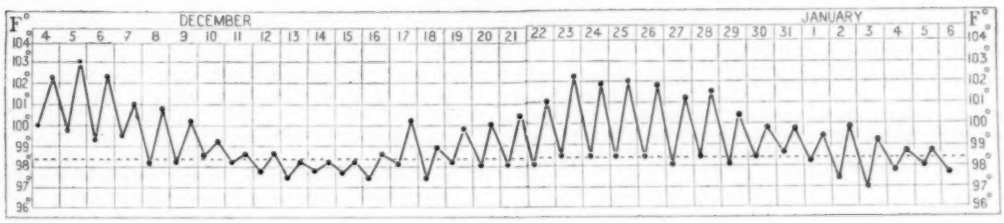
FIG. 1 (CASE 1).



During the pyrexial period the pulse-rate varied between 96 and 120. Within a few days of admission to the nursing home the symptoms abated; on April 16th the temperature fell to normal and remained so until her discharge on May 3rd. There was, however, a somewhat protracted convalescence and it was not until the end of June that the patient was able to resume her normal life.

CASE 2 is that of a man aged 40, a market-gardener, who lived in a small village in Kent. He had served in France during the war but otherwise had never been abroad. There was no history of any previous illness suggesting undulant fever. In March, 1926, he had an attack of influenza with physical signs at left base suggesting early pneumonia, but no consolidation supervened. The undulant fever appeared to commence insidiously, for, during the summer of 1926, he began to feel unwell until, on Nov. 10th, he suddenly collapsed. He complained of fever, severe pain in the small of the back, and a throbbing headache. After several days he recovered and was able to resume his work. On Dec. 4th, however, another attack of fever began and, as is shown in Fig. 2, the temperature rose and fell until Dec. 12th. It remained normal for five days until Dec. 17th, when another attack commenced. This continued and on Dec. 31st, when the attack had almost subsided, he was admitted to a nursing home under the care of Dr. A. E. Russell.

FIG. 2 (CASE 2).



On admission he complained of a general feeling of fatigue and weakness, pain in the small of the back, and sweating, which was not excessive. No physical signs were discovered on examination, and there was no enlargement of the spleen. A blood examination done on Dec. 31st gave the following result: hæmoglobin, 84 per cent.; total red cells, 5,550,000; total leucocytes, 3900, with polymorphonuclears 47·5 per cent., lymphocytes 39 per cent., large hyalines 12 per cent., and eosinophils 1·5 per cent. A blood culture done on the same date proved sterile, but the agglutination reactions showed positive results against *M. melitensis* to 1–1000 and against *B. abortus* to 1–2000. Against *B. typhosus* and *paratyphosus* A there was positive agglutination in a dilution of 1–25, but completely negative against *B. paratyphosus* B and C, these results being attributable to previous inoculation with T.A.B. vaccine. Cultures made from the urine were negative. The symptoms gradually abated and the temperature fell to normal on Jan. 5th, 1927, and remained so until he left on Jan. 21st, since when there is no history of any recurrent attack.

The clinical course of each of these cases, the results of the blood examination, and the serum agglutination reactions suggest strongly a diagnosis of undulant fever. I regret that in neither case was a positive culture obtained either from blood or urine, but in each case my only opportunities occurred almost at the termination of the disease. In the event of failure to isolate the causative organism, no real differentiation between an infection due to *M. melitensis* and one due to *B. abortus* is possible. Such evidence as there is, however, would indicate that both were cases of *B. abortus* infection. The antiserum prepared in the laboratory against *M. melitensis* antigen agglutinates *M. melitensis* to a titre of 1–2500 and *B. abortus* to 1–1500, whereas the sera from both patients agglutinated *B. abortus* to a higher titre than *M. melitensis*. Both patients drank cow's milk obtained from farms in their immediate vicinity and in both cases there was a vague history of abortion amongst the cattle, but confirmation could not be obtained. In neither case was there any history of goat's milk being taken, nor were there any goats in the surrounding neighbourhood.

I wish to express my thanks to Dr. Box and to Dr. Russell for permission to report these cases.

A CASE OF MENINGITIS ASSOCIATED WITH *B. PROTEUS*.

BY GEOFFREY BEWLEY, M.D. DUB.,
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AND
ERIC S. HORGAN, M.D. DUB.,
DEPT. OF BACTERIOLOGY, DUBLIN UNIVERSITY.

CASES of meningitis or other acute infections due to *Bacillus proteus* seem to be extremely rare. A recent article by Neal [1] deals with meningitis due to organisms of the *coli* group, but no mention is made of *B. proteus*, it being presumably considered outside this group. The only cases we can find recorded of virulent *proteus* infections are one of *B. proteus* septicæmia in man [2] and one of *proteus* meningitis in an infant.[3] In addition Anderson [4] has recorded two cases of typhus fever, in which *B. proteus* (apparently of the same strain) was isolated from the cerebro-spinal fluids, but as meningitis was not present in either case the significance of this finding is doubtful.

The following case presents several points of interest in this connexion.

Clinical History.

The patient, a boy aged 13 years, had always been healthy until Nov. 23rd, 1926, when he developed a headache which gradually became more severe. Four days later he started vomiting and was unable to take any food, and on the

morning of Nov. 29th he became unconscious and was brought to hospital.

When first seen by one of us (G. B.) he was unconscious and could not be roused. He was thin, pale, and had a coated tongue, his bowels not having moved since the onset of the attack, and his temperature was 101° F. His head was retracted and his neck muscles stiff. His pupils were dilated and did not react to light. His knee-jerks were increased, but there was no ankle-clonus, and the plantar reflex was normal. Kernig's sign was present and there was retention of urine. A lumbar puncture was performed and 20 c.cm. of cerebro-spinal fluid drawn off under considerable pressure. The fluid was slightly greenish in colour, very turbid, and contained an enormous number of polymorphs. A portion of the fluid was sent for bacterial examination to one of us (E. S. H.), who reported that a direct smear showed a very few Gram-positive diplococci. Accordingly antipneumococcal serum was at once injected into the cisterna magna.

Next morning the clinical condition was unchanged, except for the temperature having dropped to 99° F. The bacterial report was received that a Gram-negative bacillus had grown from the fluid and was probably a contamination. A second cisternal puncture was performed, the fluid was drawn off for another examination and more serum was injected. On the following morning the patient's condition was worse, his temperature being 104° F. and his pulse weak. A third intrathecal injection of serum was given; but the temperature continued to rise, and in the afternoon it reached 108° F. just before death supervened.

No post-mortem examination of the body could be made.

Laboratory Findings.

When the first specimen of lumbar fluid was received direct smears (Gram stain) were made in addition to culture on blood-agar and glucose broth. A careful search of the smears in addition to the numerous pus cells revealed what appeared to be Gram-positive diplococci—very few in number—and a provisional diagnosis of pneumococcus was made. However, both liquid and solid media gave pure cultures of a Gram-negative bacillus. There were only a few colonies on the blood-agar plates, although the purulent fluid had been spread thickly, and this perhaps accounts for the failure to find the bacillus in direct smears. This was thought at first to be merely a contamination, but the second specimen of the fluid gave exactly the same organisms. Examination for the tubercle bacillus was negative in both cases.

The characteristics of the above organisms were as follows: A Gram-negative motile bacillus morphologically resembling *B. coli*. The colonies on agar were large, white, and confluent, and grew in a series of concentric waves. In broth there was a general turbidity with a putrid odour. There was no hæmolysis on blood-agar.

Fermentation Reactions.—Acid and gas on glucose and lævulose; no change with maltose, mannite, dulcite, lactose, and saccharose. Indol was produced in faint traces (Ehrlich's reagent) on a special peptone (difco) broth after several days' growth, but was not found when ordinary tryptic digest broth was used. Gelatin was liquefied.

The classification of the *proteus* group based on either fermentation reactions or indol production is extremely unsatisfactory at present, but the above organism corresponds fairly closely to *Proteus mirabilis* in Bergey's classification, or into group I. according to Besson.

In our opinion the Gram-positive bodies seen in the smears were certainly artefacts, such as are often seen in films containing pus. It seems impossible to believe that they could have been living pneumococci, as we have never failed to grow such (from cerebro-spinal fluids) by inoculating it liberally into glucose broth. It may be argued that these were dead pneumococci, but in this case some signs of clinical improvement would have been expected, and it is hard to see how they could have disappeared completely from the cerebro-spinal fluid in the 24 hours between the two punctures.

On the other hand, it is difficult to state with certainty that the *proteus* organism was the cause of the fatal meningitis, but the fact must be significant that it was isolated in pure culture on two successive occasions.

References.—1. Neal: Amer. Jour. Med. Sci., 1926, 172–740. 2. Irimonoiu and Popa: Compt. rend. Soc. de Biol., 1925, 92–1082. 3. Bischoff and Brekenfeld: Ztschr. f. Kinderh., 1925, 39–421. 4. Anderson: Jour. Path. and Bact., 1921, 24–478. 5. Bergey: Manual of Determinative Bacteriology, 1923. 6. Besson: Technique Microbiologique et Sérothérapique, 1924.

A CASE OF IODISM

BY MATTHEW MASSER, M.B., CH.B. LEEDS.

THE following case has several interesting features.

An ex-soldier, aged 31, who was receiving a pension for war nephritis, came to me complaining of persistent headache, general malaise and debility, gastro-intestinal discomfort, and poor appetite. Examination showed him to have albuminuria and high blood pressure, to which his symptoms were attributed.

He was put on a low protein and nuclein diet, and was given gr. 5 potassium iodide three times daily. Four days later I was called to his house. The patient was in bed and complaining of severe running from the nose, inflammation in the right eye, and a swelling on either side of the neck. Examination showed conjunctivitis of the right eye and coryza, an acutely injected and œdematous throat, and a painless bilateral cervical adenitis. The tongue was thickly furred. The chest was normal and temperature was normal. There was no rash visible, nor was there any history of chill.

The symptoms were apparently due to iodism, as they rapidly subsided on the cessation of the iodides. The interesting features of the case are the painless cervical glandular enlargement, which was the most prominent of the patient's symptoms, and the possibility of the toxic symptoms being due to defective elimination of iodides by the damaged kidneys.

A CASE OF POST-MORTEM CÆSAREAN SECTION, WITH DELIVERY OF A LIVE CHILD.

BY I. R. ROSIN, M.B., B.CH. DUB.,
HOUSE SURGEON, THE INFIRMARY, BURY.

THE following is a brief account of a somewhat unusual case.

Mrs. L. K., aged 30 years, was admitted as an emergency case to Bury Infirmary on June 28th, 1926, in a state of unconsciousness.

That morning at 6 o'clock her husband had gone off to work as usual, leaving her asleep in bed. At about 9.15 A.M. it appears that "she got out of bed and fell heavily to the floor in a queer condition," according to the little daughter who immediately called in a neighbour. The latter, knowing her to be pregnant and "expecting shortly," called in the midwife, who immediately sent for a doctor. The medical man ordered her removal to hospital, where she was put to bed; but within a few minutes of her admission, while she was being examined, the faint trace of life still present flickered out.

Although realising that the patient was dead, I persevered for 15 minutes in an attempt to resuscitate her by artificial respiration and administration of oxygen, and hypodermic injections of strychnine, digitalin, and pituitrin. All these were of no avail.

Palpation of the abdomen during this time revealed tumultuous movements on the part of the fœtus and the fœtal heart could be heard beating at the rate of 156 beats per minute. Under the circumstances, I decided to perform Cæsarean section and delivered a full-time male child—in a state of asphyxia livida—a quarter of an hour after the mother's death. Twenty minutes of artificial respiration and alternate immersions in hot and cold baths revived the child and he cried lustily. He weighed 7¼ lb., and has since made normal progress.

At the post-mortem examination of the mother, the liver was found to be enlarged and studded with small hæmorrhages; the spleen and kidneys were acutely inflamed, and the heart muscle was soft and showed signs of fatty degeneration. The brain, on removal, appeared perfectly normal, but it was found that the entire left lateral ventricle was filled with a large recent blood clot.

I am much indebted to Dr. J. C. Turnbull, honorary obstetric surgeon to the Bury Infirmary, under whose care the case was admitted, for permission to publish these details.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

GENERAL MEETING OF FELLOWS.

A SPECIAL general meeting of Fellows was held on April 7th, Sir STCLAIR THOMSON in the chair, when Mr. W. G. SPENCER opened a discussion on

BLOODLETTING.

The subject, he said, still lay to some extent under the cloud of prejudice handed down from the days of general disuse of venesection. Under certain circumstances it might be the sole means of saving life, but further evidence was needed to establish the indications for more chronic conditions. The discovery of the circulation had had no influence upon the practice of bloodletting, which had been discarded 300 years later, owing to the revolution in the art of diagnosis. Mr. Spencer then reviewed the history of the procedure among the ancient and mediæval physicians. Some of the influential members of the profession who had put forward opinions directed towards the disuse of bloodletting had been John Hunter, Marshall Hall, P. C. A. Louis, Hughes Bennett, James Paget, and Benjamin Ward Richardson. Impairment of the pulmonary circulation was the capital indication for bloodletting. Experiments on asphyxia had shown that the blood became more viscous and that less and less venous blood reached the left auricle and the myocardium, which was thereby reduced in activity. At the point when respiration had ceased, although the heart was still beating, venesection to an extent sufficient to cause a sudden fall of blood pressure in the pulmonary circulation produced afferent impulses, transmitted by the vagi to the respiratory centre, and there was also a rapid withdrawal of fluid from the connective tissues back into the blood, which thus became less viscous. Mr. Spencer referred to a number of cases, recorded by Henry Sutton, Pye-Smith, and others more recently, in which venesection had saved life. The conditions included passive congestion of the lungs, cardiac disease with failing circulation, air embolism following artificial pneumothorax, scarlatina, nephritis, bronchitis and "suffocative catarrh," apoplectiform seizures, status epilepticus, and heat-stroke. J. S. Haldane and his colleagues had pointed out that artificial respiration in cases of asphyxia might fail because apnœa had been set up. In such instances venesection might start spontaneous breathing by afferent excitation of the respiratory centre. Bloodletting had also been used effectively in acute alcoholic delirium and methæmoglobin, carbolic, and mushroom poisoning. In young children it might be difficult to open a vein, and some workers had adopted radial arteriotomy.

Small quantities of blood could be conveniently extracted by cannulæ lubricated with an anticoagulant. Venesection served as an adjuvant to drugs in promoting sweating, expectoration, purgation, urination, and sleep. The pain of aneurysm and the headache of high blood pressure were relieved. Polycythæmia of the type resulting from overproduction of red blood corpuscles was the one kind in which venesection was indicated. Animal experiments had proved that after the first bloodletting there was increased activity of the bone-marrow, and letting a few ounces of blood had been advocated by many practitioners for chlorosis. The speaker had once seen a case so treated by Dyes.

Dr. HERBERT FRENCH dealt with the value of bloodletting in two types of chronic case. Rare, but not so uncommon as was thought, was splenomegalic polycythæmia, which he had seen treated in many ways but never so much benefited as by bleeding at regular intervals. Nor did cases ever do badly under this treatment.

More common, but difficult to define, were cases among busy overworked intellectual men, who took too little exercise and who gradually found, somewhere between 45 and 55, that their brains would not work so well; they felt giddy in the mornings, a little "swimmy" and so on. This type of case was apt to get included with the high blood pressure group but hyperpiesia was not an essential feature of the clinical picture, and bleeding gave relief regardless of whether it reduced the blood pressure or not. The benefit was measured by the patient's own feelings, he felt better while it was being done, was much more active afterwards, and returned spontaneously for another venesection. In women the same kind of trouble with vague feelings of fullness in the head usually occurred about the menopause. Such patients invariably benefited by bloodletting, and the reason seemed to Dr. French probably to be that there were times when the destruction of red blood cells did not continue as speedily as it should, so that there was a banking-up in the system. If a pint of blood was removed a fresh pint was soon supplied, and so the circulation was renewed. Dr. French then illustrated the simple and satisfactory "needle and bottle" method of removing blood. The special needle differed from ordinary needles in being part of a cone and not of a cylinder, so that it caused very little pain and never allowed clotting.

Dr. FORTESCUE FOX said that the value of venesection had been brought home to him by a case of thoracic aneurysm. Before means had been devised for estimating the blood pressure, venesection had been used for all obvious emergencies of the circulation; cyanosis was relieved and the arteries became reflexly relaxed in pulmonary and cardiac cases, thoracic tumours, carbon monoxide and other poisoning. Many remarkable cases of patients bleeding themselves in circulatory emergencies had been put on record. Cases of heatstroke demanded large venesections.

Health seekers at spas, said Dr. Fox, were not so much ill as candidates for illness, and amongst such cases venesection had another field, of equal or even greater usefulness. Sometimes the sudden ingestion of water was in excess of elimination, and, since the functions of elimination were commonly defective, the danger of plethora was by no means negligible. A preparatory venesection or course of purgatives was often wise before taking the waters. There were two types of hyperpietic: the jovial, florid, and plethoric individual and the more serious, pale, anxious-looking one. In both, spontaneous hæmorrhage might occur from nose or uterus, or profuse watery evacuations, and symptoms were thus relieved. Hyperpiesis and nervous hypertension were in most cases the transient disorders of an epoch, and many patients passed in time out of the danger zone. The behaviour of the vessels shewed that the essential factor was hypertension—a disordered nervous and circulatory function. Venesection might or might not cause a fall in blood pressure. In many women a course of sedative baths after the menopause was preferable to venesection.

Death from apoplexy in the fifties and sixties appeared to be increasingly common among brain workers, and could often be prevented by venesection when the blood pressure began to rise. Dr. Fox suggested that many failures occurred because preventive measures were not bold enough and were taken too late. His practice was to combine substantial periodical venesection with fasting in bed and a course of sulphates, a régime which could be repeated, if necessary, every two or three months. He had used the method in cases of more or less advanced cardiovascular degeneration, as he could not believe that the high pressure was a desirable compensation for increased peripheral resistance; the pressure was attributable to exaggerated tonus rather than to degenerative changes. The vessels, after long contraction, would often, in fact, resume their natural size under suitable treatment. In many cases of atheroma of the aorta the blood pressure was liable to periodical and dangerous increase.

No little discrimination was needed in selecting cases for venesection. He agreed with Dr. French on its value in patients with flushing, heat, and throbbing in the head without serious rise of blood pressure.

Sir WILLIAM HALE-WHITE spoke of the enormous numbers of people bled every spring in past years, and said that the most striking thing he knew in the history of medicine was this abrupt change. In 1840 a practitioner had been accused of malpraxis because he had not bled a case of pneumonia. Cases of all sorts had been bled for no particular reason that we could see now, except that it was the fashion. Apart from tragedies due to loss of blood, many patients died of pyæmia from septic venesection wounds. Nowadays the case above all others that called for bloodletting was the one in which the right heart was overwhelmed, and the guide was: "Is the patient livid?" The dilated right heart was in the condition of a paralytic bladder, and until it was emptied directly it could not contract and the patient would do badly. Digitalis was often found to act much better after venesection than it had before. Most pneumonias were not livid, and so did not need it. In apoplexy it was important to choose the case which was one of embarrassment of respiration —again shown by the livid face. Venesection was of immense benefit in those few cases of status epilepticus where convulsions predominated so that the patient was livid. It was not of much permanent use in uræmia unless the patient was very livid; little poison would be removed from the system by withdrawing a pint of blood. It relieved the pain of aneurysm and was undoubtedly valuable in polycythæmia where the total volume of the blood, as well as the number of corpuscles, was increased; where the condition was in fact an "innocent tumour of the blood." In cases of high blood pressure there was much to be said on both sides. Two practical points might be noted: the patient should always be bled sitting up, so that if he fainted he could be revived by lying down, and great caution should be exercised in bleeding the young and the very old, who stood it badly. Arteriotomy had gone out of fashion, and leeches and wet cupping were ineffective.

Dr. J. F. HALLS DALLY mentioned further points in the history of the practice, and agreed with Dr. French and Dr. Fox that it was useful in high blood pressure, though depending less on the height of the pressure than on the symptoms. The relief given by venesection was, however, only temporary, and for real benefit should be combined with treatment by starvation for periods from 24 hours upwards, and with general lowering and depleting measures.

Sir JAMES DUNDAS-GRANT quoted successful cases in his own practice of the use of venesection in uræmia following scarlatinal nephritis, in asphyxia from drowning, in puerperal eclampsia and uræmia, and in post-operative congestion when hæmorrhage into the wound was threatened.

Fleet-Surgeon W. E. HOME described venesection in hospital practice in Edinburgh in 1841. Of the three leading physicians of that time Allison treated his "fever" cases with wine and opium, Henderson gave them nothing at all, and Craigie bled them. There was no difference whatever in the mortality, but Allison's patients had a quick convalescence, Henderson's had a long one, and Craigie's had a "protracted, painful, and terrible" one.

Sir WILLIAM WILLCOX thought there were five classes of case which benefited by venesection. The first was that of right heart dilatation. He thought that insufficient importance was attached nowadays to percussion; dullness in the fourth right space was a valuable indication of the size of the right auricle. The second class was convulsive, including status epilepticus and uræmia. Cases of chronic nephritis did not do well, but where the kidney was only temporarily incapacitated from function, as in eclampsia and trench nephritis, bleeding stopped the convulsions. In the third class came heat-strokes; that the benefit was not due merely to removal of toxins was shown by the fact that if normal saline were introduced after the bleeding the convulsions were started all over again. Polycythæmia was the fourth type of case, and the fifth he described as medico-legal—patients with violent asphyxia—e.g., due to drowning or hanging. He thought that Dr. Fox's scheme of timely venesection in cases of high blood pressure was admirable. Bloodletting was a form of treatment of the utmost value in certain cases, and ought to be practised more than it was to-day.

Dr. H. LETHEBY TIDY said that all were agreed that blood should not be let for anæmia or conditions of low blood pressure. Much of the discredit which had fallen upon the practice was probably due to the error of applying it for those low pressure conditions which simulated high pressure—e.g., cerebral thrombosis. All were agreed also on its value in polycythæmia, in high blood pressure as described by Dr. French and Dr. Fox, in sunstroke, and in acute dilatation of the right heart with lividity. There appeared to be two uræmic groups: that mentioned by Sir William Willcox where venesection should be done, and those more chronic cases described by Sir William Hale-White where it should not be used.

Mr. SPENCER, in reply, mentioned the large number of cases of carbon monoxide poisoning occurring at the present time in which only artificial respiration was tried.

HARVEIAN SOCIETY.

A MEETING of this Society was held on April 7th, Dr. E. LE FEVRE PAYNE, the President, occupying the chair.

Mr. T. P. DUNHILL opened a discussion on the

TREATMENT OF GRAVES'S DISEASE.

He had come to regard the treatment of this disease, he said, as requiring the conjunction of the physician and the surgeon. Often there came a stage at which medical resources seemed to have reached their limit, and then much could sometimes be done by surgery. There had been a time when physicians and surgeons warmly debated on the best treatment—when physicians said that if a case were left alone and given a chance it would get better. In this country the position had been reached at which physician and surgeon coöperated, going through the wards together, realising that these people were very ill, that they had a long and hard fight in front of them, and that sometimes they could be helped in one way and sometimes in another. In every case of this disease medical treatment should precede surgical measures; for a long time every case should be regarded as medical. The ætiology and pathology should always come into the surgeon's purview. It could not reasonably be expected that surgery would always make the patient quite well, and any estimate of the results must be based on her condition before operation. Sometimes circumstances prevented the ideal treatment being followed, and even under good conditions in hospital wards some patients seemed to lose ground. The time of operation must be carefully considered in each individual case. It varied greatly according to the progress of the disease and the social position of the patient, but surgical intervention was practically never indicated during the first six months of the disease. The onset might be insidious; indeed, there must be many people who almost developed the disease but did not quite do so. Therefore if exophthalmic goitre were met with in early stages it must be possible to restore the patient to normality. Some cases, however, began with severe symptoms, such as vomiting and diarrhœa.

Of 170 consecutive patients on whom he had operated between 1921 and 1925, 68 had been suffering from the disease for more than four years, 48 for over six years, whilst 32 had been very ill over ten years. This, of course, represented a very large total of morbidity and unhappiness, as well as economic loss. Circumstances often determined anxiety for operation; the patient might be poor and have the cares of a family upon her, or she might have to earn her own living.

Sometimes only a short stay in hospital could be arranged, and perhaps when the patient left she was no better than when admitted. Crises occurred from time to time, and as a result the general plane of health was lowered. Here operation was most helpful. It was necessary to take the long view, and patients must realise that this condition began gradually, went on for a long time, and therefore improved only slowly. All cases should be carefully watched; he had found cardiac failure, glycosuria, and mental trouble develop even while subjects were occupying hospital beds. Sometimes visceral or cerebral intoxication dominated the picture. Of 910 patients with exophthalmic goitre on whom he had operated, 61 had had established auricular fibrillation for months, some of them for years. Many had continual œdema well up the body, and fluid in the abdominal cavity, their mental state being such that they could not be kept in their own homes.

Safety and Efficiency of Operation.

The origin of Graves's disease, said Mr. Dunhill, was not necessarily in the thyroid gland; but it was the secretion from that gland, acting as a circulating poison, which damaged the viscera. When medical treatment did not seem to have succeeded, the intoxication should be lessened by operation, which could be made safe by ensuring that the patient had no load to carry besides the disease. Even at the present day patients who had gross sepsis were sent for surgical treatment. Such conditions as abscess at the root of a tooth or septic tonsils did more damage to patients with Graves's disease than to ordinary people. Everything which reduced the reserve of health should be eliminated before surgical intervention was considered, and operation should be prefaced by sufficient rest in bed and preparation of the patient. If operation were attempted on the day following admission many patients would die. Several days were needed for the pulse to come down to its resting level under quiet and absence of worry. After this resting level had been reached, iodine medication should be carried out; it would bring that level lower still and induce a change in the pathological condition of the gland which made the operation safer still. At the operation itself the amount of interference must be governed by the patient's strength. There was a temptation to get the operation over at one sitting, but it must be remembered that these patients were not subjected to operation until they had been ill a long time. When cardiac lesions and œdema were present, safety could only be ensured by the closest coöperation between physician and surgeon.

As an anæsthetic in these cases Mr. Dunhill regarded chloroform as absolutely unsafe. Open ether was safe, but it was inconvenient to have a mask over the chin. Local anæsthesia gave a comfort in work and a freedom from bleeding which were otherwise unattainable. Indeed, when auricular fibrillation was present he considered local anæsthesia essential. Unless moribund, most patients stood the operation if these precautions were taken. The removal of the first lobe was a comparatively easy matter; the difficulty lay in the taking away of the right amount of the second lobe. In this second stage the approach had to be made through scar tissue, the anatomical planes having been a good deal destroyed by adhesions. Moreover, a very vascular gland had to be cut through. Unless the surgeon was prepared to carry through this second operation he should not attempt the first. Enough of the gland must be removed to eliminate the toxic effects of the secretion, always remembering the physiological needs of the body. The death-rate following operation would vary within wide limits according to the type of patient, the time selected for operation, and the care with which the preliminary treatment had been carried out. Some surgeons would not operate on patients who were very ill because of the risk of spoiling their statistics. If all cases requiring surgery were operated on, the mortality-rate, he thought, could not be brought below 3 per cent.

In a large series of cases mental disorder was not infrequent. Some patients suddenly became maniacal and died. In the presence of mental symptoms he had never operated until the relatives fully appreciated what was at stake, and it was well to have the help of an alienist before deciding to employ surgery. People who had had Graves's disease in marked degree never, he thought, became quite normal again, though the removal of a large part of the gland often brought about dramatic relief. These patients, if possible, should not resume the hard work to which they had previously been accustomed.

The Medical Aspect.

Dr. C. M. WILSON endorsed what had been said about the selection of cases for operation. Cases of toxic adenoma should be operated on, because the surgical risk was much less than in ordinary exophthalmic goitre, and medical treatment was unsatisfactory. Auricular fibrillation was also an indication for operation, as presumably the physician had been unable to restore the normal rhythm by digitalis. In the remaining group however—namely, those in which, after six months of medical treatment, the pulse-rate remained over 100 and medical treatment was considered to have failed—a much closer examination of surgical claims was called for. In many of these cases, he thought, medical treatment had not been properly tried. Mere rest and bromides could not be called medical treatment. If it had been properly tried and had failed and something more was necessary, was that "something more" surgery, or was it X rays? In the best hands, the mortality of surgery in exophthalmic goitre varied between 2·9 and 5 per cent.; the mortality after X rays was nil. This comparison justified a very careful consideration of the claims of X rays, and in suitable cases their effects should be given a trial.

To place a patient with exophthalmic goitre in a hospital ward was not necessarily to give her proper rest, continued Dr. Wilson. There might be someone slowly dying in the next bed, or disquieting details might be taught to students over a patient near by. It was doubtful whether hospital conditions were suitable for the medical treatment of these cases; what they needed was a quiet place in the country. Sepsis certainly played a part in the disease, but though it should be removed if found, it should not, he thought, be imagined. Minor operations had a bad effect on these patients. An ordinary diet was not of any disadvantage. For auricular fibrillation the digitalis should be pushed. No one could tell for certain which cases would respond well to X rays, but very severe and acute attacks were unfavourable for their use. So were cases in which the goitre was large, but the milder cases responded much better. X rays should be tried over a period of six weeks, at the end of which time any response would be evident. It was well to have the basal metabolic rate of the patient estimated, so that the ray treatment should not produce myxœdema.

Iodine, said Dr. Wilson, was the fashion of the moment. It was useful in preparation of the patient for ten days prior to operation, and also in combating crises, but it had not yet been proved of value in the routine treatment of the disease. Unless its administration was accompanied by daily observation it was capable of doing much harm. The mental factor was very important. Surgery should be reluctantly employed, as it often meant removing from a young woman three-fourths of a gland which was valuable physiologically, leaving her with one-fourth in a condition of hyperactivity. This residue might suffice for her needs while it remained over-active, but would it be enough to carry her through later, especially if she became pregnant? The success of surgery depended on the skill of the surgeon, the preparation of the patient, and the choice of the best time for the operation.

The Time and Nature of Operation.

Mr. C. A. JOLL discussed the suggestion that operation should always be deferred until six months

had elapsed from the onset of the disease. Apart from other considerations, this six months' delay might be very awkward for people who had to earn their living. Usually it was easy to find out in far less than six months whether a patient was likely to get reasonably well. He would place the minimal period before decision at three months; and even then it would be nearly 12 months before the patient returned to work. It was not right, he thought, to subject patients to a prolonged invalidism. Basal metabolism was often loosely estimated, and it was easy for grossly erroneous figures to be reported. The patient must be at rest in bed, and must be absolutely quiescent, mentally and physically.

With regard to X rays, Mr. Joll had looked up 50 consecutive cases which he had seen in private practice; 32 of them had had preliminary X ray treatment, and had only come to the surgeon because the X rays had not sufficed. This was generally true throughout the whole range of his cases; X rays caused temporary improvement, but could not be considered curative. He doubted whether myxœdema ever followed X ray treatment. He agreed that iodine could reduce the pulse-rate and temporarily improve the condition of these patients, but sometimes it caused deterioration. It was wrong to broadcast the virtues of iodine in the treatment of exophthalmic goitre, as had been done by a section of the lay press.

The selection of cases for operation, he agreed with Mr. Dunhill, required the fullest coöperation between physician, pathologist, and surgeon, and many cases were best left alone for six months or longer. Preliminary double ligation of thyroid arteries had a distinct value, in his opinion—not as a cure, but as a means of minimising the operative risk. Open ether anæsthesia did very well for cases of medium severity, but not for the severe, fibrillating emaciated cases, for which he strongly favoured local anæsthesia. If this was preceded by morphia and hyoscine, together with a rectal injection of half an ounce paraldehyde in half a pint of saline, the patient remained satisfactorily quiet throughout the operation. Not every patient, however, responded well to local anæsthesia, and any restlessness was a disadvantage both to the patient and the surgeon. Rectal anæsthesia he had found unreliable.

Frequently he had removed seven-eighths of the thyroid gland—on occasion as much as nine-tenths—and he had never seen a trace of myxœdema in the cases. What was the standard of cure? He thought that if a patient could return to work and remain at work, with the ordinary holidays, without suffering relapse, she should be regarded as cured, even though some degree of exophthalmos still persisted.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on April 7th, Dr. E. RIVAZ HUNT, the President, in the chair, Dr. RODERIC CLAPHAM showed a case of

Chronic Diarrhœa.

The patient was a woman aged 37. Two months ago she came to hospital complaining that for three years she had had diarrhœa, and that it had become much worse in the previous six weeks. She had about nine motions daily, they were quite painless, and she was losing weight rapidly.

Examination of the abdomen and rectum revealed nothing except slight weakness of the sphincters. Examination of the nervous system, however, showed that the case was one of tabes. The patient had Argyll Robertson pupils, loss of ankle- and knee-jerks, and commencing perforating ulcers of both feet. The gait was normal, Romberg's sign was absent, and there was no incoördination. There was some analgesia and paræsthesia of the feet, and of the outer side of the legs and the inner side of the arms.

Laboratory tests indicated syphilitic infection, and under treatment by Dr. F. Lawson at the venereal diseases clinic the diarrhœa improved so that the patient had only two actions a day.

Dr. J. STANLEY ELLIS read a paper on

Ultra-violet Therapy.

After giving a brief history of the development of natural and artificial sunlight therapy, he discussed the advantages and disadvantages of both methods and suggested that artificial sunlight bore the same relationship to natural sunshine as synthetic drugs bear to crude drugs. The rays had definite photo-electric, photo-chemical, and fluorescent effects on the tissues, and these were the basis of profound physiological changes. Dealing with the effects of the rays on cholesterol, on the nerve-endings, and on the production of pigment, all of which were claimed as the cause of the beneficial effects of therapy, he pointed out that the various conditions which responded to treatment fell naturally into four or five groups in which the above physiological changes and others were most marked. He also stated that certain drugs and endocrine extracts were activated by the rays in the human body, which in itself made it necessary that the physician and actinotherapist should collaborate. The use of ultra-violet rays was, he said, in danger of discredit owing to the too ardent claims of enthusiasts. Not only was this form of treatment not a cure-all, but in the great majority of cases it was essentially auxiliary to other methods.

Dr. H. M. GALT showed microscopical slides of parasites.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

A MEETING of this Section was held on March 11th, Dr. D. G. MADILL, the President, in the chair.

Dr. LOUIS CASSIDY described three cases of

HYPEREMESIS GRAVIDARUM.

Vomiting in pregnancy, he said, must be differentiated both (1) from gastro-intestinal affections, uræmia, tumours of the brain or spinal cord, meningitis, and latent pyelitis; and (2) from other toxæmias of pregnancy—e.g., pre-eclampsia. The term must be reserved for cases in which vomiting and pregnancy were synchronous and in which no cause other than pregnancy could account for the vomiting.

Morning sickness, he had found, was more frequent in primiparæ than in multiparæ, and occurred between the 8th and 16th weeks. It seemed to affect those carrying a male rather than those carrying a female child. After referring to Lindemann's post-mortem findings and the work of Miller on vagal control, Dr. Cassidy drew attention to the psychical nature of some of the cases, remarking, however, that dogs and cats also suffer from vomiting in pregnancy. Some authors (principally French) had pointed out that in hyperemesis there was deficiency in the corpus luteum, which was supposed to counteract the toxins generated by the chorionic villi. According to Pinard, the occurrence of hyperemesis in conjunction with vesicular mole was as high as 19 in 27 cases. In the hands of Seitz, van den Bergh's test showed an increase of bilirubin in the blood in hyperemesis over and above the normal increase during pregnancy.

In cases of neurotic or reflex origin, said Dr. Cassidy, the symptoms were intense thirst, bodily weakness, and emaciation; although distressing to the patient, they gave no real cause for alarm, and disappeared as pregnancy advanced. In the toxic variety, on the other hand, the pulse-rate was increased in spite of rest in bed; the tongue was furred and dry; the skin was dry; and the urine, diminished in amount, contained pathological elements such as albumin, casts, and acetone. Coma, delirium, and insomnia might occur and the condition was very grave. The following were three cases recently treated successfully on different lines:—

CASE 1.—A woman, aged 29, nine weeks pregnant, was admitted to hospital in an emaciated condition, vomiting

constantly. Her blood count was very fair, her blood pressure normal, but her urine, though normal in quantity, contained some albumin and casts. She showed little response to treatment by rest in bed, starvation, lavage of the bowel, and purgation. Corpus luteum was given in 1 c.cm. doses hypodermically, with little or no result. The patient admitted that both she and her husband were anxious not to have a child at the time.

Following the practice of Malinin of the Frauenklinik in Saratow, about 25 c.cm. of the patient's own blood was withdrawn from the median basilic vein and was reinjected in six different places. This treatment was twice repeated at intervals of three days. The patient began to improve rapidly. The local parish priest visited the patient at this time, and it must remain undecided whether the Church or Medicine was responsible for the successful issue.

CASE 2.—Mrs. B., aged 28, had been married four years, and was seven weeks pregnant. She had had one full-term pregnancy two years before. On admission her general condition was very bad. She showed great fatigue and anæmia; her blood pressure was 116-80, and her pulse-rate 90; the urine was scanty and contained albumin, casts, and acetone; the skin was dry; the tongue was dry and furred with sordes around lips and she suffered from great thirst.

The uterus, which was retroverted, was replaced and a pessary inserted. For the rest the treatment consisted of complete rest, purgation, lavage of the bowel, and rectal administration of sod. bicarb. and pot. brom. Corpus luteum extract proved ineffectual. After about two weeks the patient began to improve and eventually she was discharged cured.

CASE 3.—A primipara, aged 24, was 8 weeks pregnant. The uterus was in the normal position, the pulse-rate was 84, there was slight anæmia, and the urine was scanty, containing albumin, casts, and large quantities of acetone. The patient vomited on making the slightest movement in bed. The usual treatment of purgation, lavage of the bowel, and administration of sod. bicarb. per rectum was given. Corpus luteum had no effect given hypodermically. Irradiation of the hypophysis was attempted.

The first signs of improvement were noticed about 14 days after admission to the nursing home and followed rectal administration of pot. brom. gr. 30 in four ounces of water morning and evening.

Discussion.

The PRESIDENT referred to a previous discussion on hyperemesis in early pregnancy,[1] and to the great stress then laid by Dr. FitzGibbon on the neurotic element and its treatment by psychotherapy. He personally thought that a great many of these cases were toxic in origin. He had administered thyroid extract in a couple of cases, but had not found it of any value. Dr. Cassidy was to be congratulated on not having had to induce therapeutic abortion in any of his cases. It was always taught that if starvation, thorough elimination, and rectal enemata did not stop the vomiting in these cases, then pregnancy should be stopped; yet Dr. Cassidy's three cases had all been treated in different ways, and it had not been necessary to stop pregnancy in any of them.

Dr. BETHEL SOLOMONS said that if women were unaware that vomiting occurred in pregnancy, few would suffer from it. Patients were often in doubt as to their condition because they did not vomit, although told by their friends that they ought to do so. He was a firm believer in the neurotic or psychological element as an ætiological factor, both in the mild and severe forms of vomiting. Irrigation of the stomach had a good effect in all cases. When done gently it caused no shock, and it had the excellent effect of (1) removing the backflow from the liver, and (2) clearing up hysterical cases because it was unpleasant. It was also useful because purgatives could be left in the stomach, and he was surprised that Dr. Cassidy had not adopted so simple and excellent a form of treatment in any of his cases. He believed, too, in removing such things as basins from the patient's bedside, and in putting the patient on a full diet free from all greases. While holding the view that most cases were of the psychological type, he had full knowledge that there were some few which were toxæmic and must be treated as such. In the treatment by subcutaneous injection of the patient's own blood, it was interesting to note that the sequence of events had been: injection of blood—marked *fright*—cure. It was seldom necessary, he thought, to perform therapeutic abortion.

Dr. GIBBON FITZGIBBON thought that the psychical element in these cases was very strong. Patients got into the habit of vomiting, and thought that they should vomit. While master of the Rotunda Hospital he had found that cases generally responded to starvation, elimination, and enemata, and he had only had to induce abortion twice. One of these had died even after abortion. These cases seemed to him to respond to all sorts of treatment, and the more he saw of them the more he was convinced of the psychical element in them. He thought there was no reason to believe in the toxic element in hyperemesis. Vomiting was always more severe in the multipara than the primipara. In one case he had tried injecting human blood into the patient, but without any result. There was far too much fear of letting these patients carry on, and he thought that pregnancy should be allowed to continue up to the fourteenth or sixteenth week, different methods of treatment being tried till then, before abortion was induced.

Dr. D. CANNON asked if any effort had been made by gynæcologists to visualise the mechanism of the stomach in hyperemesis. He had seen two cases in which it had been proved that achlorhydria was present. He referred to work done by Prof. D. P. D. Wilkie in this connexion, and also to that of a German investigator who had shown that over-regurgitation of bile into the stomach would cause morning vomiting and other symptoms in pregnancy, and had suggested the administration of atropine sulphate. Dr. Cannon felt that these cases were functional and not toxic. He wondered how a retroverted uterus could cause gastric symptoms, and yet he had often found that simple correction of the uterus did effect a cure. An American observer had proved that duodenal stasis was present in hyperemesis.

Dr. G. TIERNEY said that it was difficult to decide which cases were toxic in origin and which were not. He considered that a number of them had a psychic as well as a toxic element. He mentioned a paper recently published by Dr. W. E. Levy, of New Orleans, in which it was stated as evidence of toxæmia that acetone was found in the urine, with diminution in the blood-sugar and in the CO_2-combining power of the blood. The paper reported six cases in or about the fourth month of pregnancy. They had been treated for a time on general lines without success before coming under his care. Then they had been treated with insulin and glucose. One woman, who was four months pregnant, and had been vomiting continuously for three weeks, was in such a state that he thought he would have to resort to therapeutic abortion, but after intravenous injection of insulin and of a 10 per cent. solution of glucose, the vomiting had ceased, so that the patient went on to full term.

Dr. E. HARVEY suggested that the cases which were helped by insulin were those in which acidosis had been the cause of the vomiting. Insulin would not necessarily be effective in other cases in which acidosis was not the cause of the vomiting.

Dr. CASSIDY, in reply, said that he did not think the psychical effect of washing out the stomach would be sufficient to justify the distress which it would cause to these patients. Most of them were of a neurotic type. Generally, vomiting developed about the eighth week and stopped about the sixteenth week; it seemed that the vomiting diminished as the resisting powers of the body increased. Acetone would be found in the urine in any case of starvation and should not be taken as pathognomonic of hyperemesis gravidarum. An increase of bilirubin in the serum was, he thought, a sign that the case might be toxic. From the clinical point of view it seemed that the important thing was to try to distinguish between the toxæmic and the purely neurotic case.

Dr. D. CANNON read notes on a case of retroperitoneal fibroid, and a discussion followed.

[1] THE LANCET, 1926, i., 76.

Reviews and Notices of Books.

EPIDEMIC DISEASES OF THE CENTRAL NERVOUS SYSTEM.

By ARTHUR SALUSBURY MACNALTY, M.A., M.D.Oxf. London: Faber and Gwyer, Ltd. 1927. Pp. 194. 12*s.* 6*d.*

THIS book is an expansion of the Milroy lectures for 1925. In publishing them in handy form Dr. MacNalty has done a real service, not only to those who specialise in epidemiology or in neurology, but to every member of the medical profession who wants to find out where we stand to-day in our knowledge of these comparatively modern types of epidemic disease. As the author says, "the increasing incidence of these diseases in Europe and America and the fact that they bring in their train new problems which concern the epidemiologist, the medical officer of health, the practising physician, and the public health administrator, demand that available information on the subject shall be collated and examined from all possible points of view." These words epitomise exactly Dr. MacNalty's book. It gives a concise account of the most important facts bearing on the subject with which it deals, and has the advantage of being written by one who, from his wide experience and ripe judgment, is able to present them in a balanced and assimilable form.

The three diseases here considered are cerebrospinal fever, acute poliomyelitis, and encephalitis lethargica (epidemic encephalitis). These are compared and contrasted from various, but, in each case, from similar, points of view. The book is conveniently divided into six parts. After a short introduction Part I. deals with the increasing susceptibility of the central nervous system to attacks of epidemic disease. Various theories attempting to explain this are discussed and considered; thus the theory of increased facilities for spread, the occurrence of epidemic cycles or waves, and also the epidemic "constitution," a term which, as the author says, "is admittedly vague." Whilst paying adequate consideration to each of these the author puts forwards the suggestion that, possibly, it may in the future prove more fruitful to give "the soil" at least equal consideration with "the seed." In this connexion he refers to the striking fact, which cannot be overlooked, that the earliest appearance in epidemic form of the present wave of encephalitis lethargica coincided in time with the peak (or should we say the beginning of the plateau) of distress due to war—it was the winter, 1916–17—whilst it coincided in place with the area in which that distress occurred in its greatest intensity—viz., Central Europe. If this was merely a coincidence it was a remarkable one. The question as to whether the human nervous system is becoming more susceptible owing to the rush and strain of modern life—a very real possibility—is discussed, and the suggestion is tentatively put forward that we may be dealing with organisms which, if not new, are at least changing their pathogenic propensities.

After an interesting survey of the evidence as to the possibility of these diseases being transmitted from domestic animals the author finds it "not proven." Part II. relates the steps by which the epidemic nature of diseases of the central nervous system has gradually been recognised. The chapters in this section deserve careful study, for although these diseases are officially notifiable as infectious, yet in practice their mode of spread is so obscure and the actual danger of direct infection seems so slight that it is sometimes difficult to persuade doctor or patient that serious precautions are necessary. In reading Dr. MacNalty's reasoned and convincing account it should be remembered that the author himself has played no small part in helping to lay the foundations upon which our present knowledge of such infectivity is being built. Parts III., IV., and V. deal with the history and epidemiology of each of the three diseases in turn and are full of information presented in attractive form. In the concluding chapters (Part VI.) the means at present available for preventing the spread of these epidemic diseases are discussed. Stress is laid on the importance of recognising "abortive cases," which probably play an important part in the spread of all three diseases. The necessity of treating each individual case as a potential source of infection is duly emphasised, both as regards personal isolation, disinfection of the patient, and his surroundings. Unfortunately, our knowledge is still slender as to the duration of such infection, hence the difficulty in laying down any definite rules as to how long these precautions should be continued.

In his conclusion Dr. MacNalty points out that, although an alarming increase in epidemic nervous diseases is shown by the notification returns, the actual increase is probably considerably greater. This is certainly true in the case of encephalitis lethargica. So long as medical practitioners are content to dismiss as "influenza" every slight febrile attack which they meet with, although the data for such a diagnosis may be quite inadequate, so long will our official statistics remain far from true estimates.

An additional recommendation of these lectures is the charming style in which they are written.

HUMAN PATHOLOGY.

A Text-book by HOWARD T. KARSNER, M.D., Professor of Pathology, School of Medicine, Western Reserve University, Cleveland, Ohio. With an introduction by SIMON FLEXNER, M.D. London and Philadelphia: J. B. Lippincott Company. 1926. With 20 illustrations in colour and 443 black and white. Pp. 980. 45*s.*

IN this text-book Prof. Karsner proceeds along conventional lines in the presentation and treatment of his subject. The book is divided into two parts. The first deals with general pathology, the retrogressive changes, disturbances of circulation, inflammation and infection, the progressive changes and tumours being included in this part. Part II. is devoted to systemic pathology, and in the several chapters the diseases of the various systems and organs are discussed. A table or synopsis of the contents is given at the beginning of each chapter in the section of general pathology, a feature on which the author in his preface lays some stress, and at the end of every chapter is a well selected list of references which, while making no pretention to completeness, will admirably serve to direct the student in his more detailed reading. There are numerous illustrations, both photographs and drawings; many of them, we are told, were made under the direction of Dr. Simon Flexner for a book which he himself intended to write. They are clear and well produced and successfully fulfil their purpose of clarifying the text. The book is well printed and there is a good index.

Prof. Karsner's text-book is a notable addition to pathological literature; the teaching is sound and orthodox, and the subject is treated in the widest sense. The amount of information contained between its covers is remarkable, and debatable points are fairly and adequately discussed. If we have a criticism it is that the student may find it occasionally rather tough reading. The author has not attempted a smooth dogmatic account of his subject, but wherever any doubt exists he mentions the views and observations of different workers. The result is occasionally a rather jerky, unconnected description loaded with detail, and the inexperienced reader may feel the lack of a definite lead. It might be replied, however, and with perfect justice, that pathology has passed the stage of smooth dogmatism, and that the student must learn to think for himself. We believe this to be so, and that Prof. Karsner's book will enjoy the popularity that it merits.

DISEASES OF THE NOSE AND THROAT.

Third edition. By Sir STCLAIR THOMSON, M.D., F.R.C.P., F.R.C.S., Consulting Surgeon for Diseases of the Throat, King's College Hospital. London: Cassell and Company. 1926. Pp. 943. 45*s*.

THE third edition of this excellent work remains substantially the same as its predecessors. New sections have been written on some rare conditions, such as chorditis fibrinosa and dermoid polypi of the nasopharynx. The articles on a few subjects, which have recently been prominent, such as œsophagectasia, ozæna, and cocaine substitutes, have been rewritten or rearranged. It is in the sections on operative treatment that the principal alterations are to be found. The operation of tonsillotomy is very properly omitted; the method of laryngectomy from above downwards takes the place of excision from below; and lateral pharyngotomy is described in full detail. New illustrations have been given where required in explanation of the new matter. It need only be added that the very high standard set by Sir StClair Thomson in the earlier editions has been fully maintained in the present volume, which is one of the best and most complete books on its subject in the English language.

LIPOID TREATMENT OF TUBERCULOSIS.

Das Problem der Tuberkulose Behandlung mit Fettstoffen. By FERDINAND MATTAUSCH. Berlin and Vienna: Urban and Schwarzenberg. 1926. Pp. 66. M.2.40.

APPROXIMATELY half of this small monograph is devoted to a clinical inquiry into the treatment of various forms of tuberculosis with a non-specific lipoid known as gamelan or lipomykol, with which encouraging results were obtained. The rest of the work is a very brief summary of some aspects of the biochemistry of the fats and lipoids in tuberculosis. This summary is by no means exhaustive; the excellent text-book on the Chemistry of Tuberculosis by Gideon Wells, L. M. De Witt, and E. R. Long, published in 1923, seems to have escaped the author's notice. The various fatty substances extracted from the tubercle bacillus, the lipoids in tuberculous tissues, and cellular and humoral resistance in relation to the lipoids are described briefly. The reader is spared whole pages of graphic formulæ, which too often loom disproportionately large in monographs of this kind, and technical laboratory details are almost entirely in the background. The bibliography is, on the whole, good, considering the amount of work annually put forth on this subject. Too much space is devoted to gamelan, of which the exact formula is not given, and too little to the broader aspects of the subject to make the book a well-balanced summary.

NATIONALITY.

The Racial Basis of Civilisation. By F. H. HANKINS, Professor of Sociology in Smith College, New York. London and New York: A. A. Knopf. 1926. Pp. 384. 14*s*.

DOCTRINES of racial superiority have always existed among this or that chosen people; in recent times their rôle has been much exalted. Aryanism is the original source from which have been derived teutonism in Germany, celtism in France, and anglo-saxonism in England and America, and these cults have been pursued partly by serious scholars and more often by patriots and partisans, until each nation is convinced of its inherent superiority and the grandeur of its destiny. Prof. Hankins sets to work to pull these doctrines to pieces, and this he does in a bright and interesting way and with a success of which his readers must judge for themselves. English, French, and Germans are mixtures in varying proportions of the same components: Nordics, Alpines, and Mediterraneans are everywhere in Western Europe. Nationality is the precursor rather than the result of race, which is a unity created by social development and similarity of intellectual factors which lead to unity of blood. The "English race" is a cultural, not a zoological unit. The essential thing which gives any nation a just position of superiority in the world is that it should be the product of a crossing of able stocks—a combination, for example, of the aggressive adventurous Nordic with the reflective artistic Mediterranean. This gives a greater range of variation and a higher probability of getting more of those biological accidents which we call geniuses. It gives, too, a better chance of finding new lines of cultural development which soon amalgamate the hybrids into a good sociological species. Such in brief is the author's chief thesis. He puts it forcibly, and there is probably more to be said on the other side than he allows; but he is thoroughly interesting all the time. The book is beautifully produced.

SYMBIONTICISM AND THE ORIGIN OF SPECIES.

By I. E. WALLIN, Sc.D., Professor of Anatomy in the University of Colorado School of Medicine. London: Baillière, Tindall and Cox. 1927. Pp. 171. 13*s*. 6*d*.

THERE are, says Prof. Wallin, two views of the nature of the mitochondria which have engaged the attention of almost every respectable cytologist in recent years. One is that they are cell organs, the other that they are symbiotic micro-organisms. He does not mention the third—that they are artefacts. He has convinced himself that the second view is correct. Morphologically they are like micro-organisms, and in cultures he has obtained minute bodies of a tolerably similar appearance. The evidence is not conclusive. It is conceivable, for example, that parts of cells may be cultivated in vitro as well as whole cells; the viruses which cannot multiply apart from cells may obviously be of this nature. It is, indeed, difficult to see how convincing proof of the organismal nature of mitochondria could be obtained, for in the last resort one would come to the insoluble problem of what exactly an organism is and whether things exist which are partly organisms. However, taking the nature of mitochondria as settled, Prof. Wallin goes further than those who have upheld his view before, for he claims that this general symbiosis plays a fundamental rôle in the evolution of new species. His book is readable and interesting, and there is a useful bibliography. The speculations include a body of facts which need careful consideration; his interpretation of them may turn out to be correct.

THE POSITION OF SCIENCE.

Gallio or the Tyranny of Science. By J. W. N. SULLIVAN. London: Kegan Paul, Trench, Trübner and Co. 1927. Pp. 96. 2*s*. 6*d*.

THE booklets of the "To-day and to-morrow" series vary a great deal in quality; this is one of the best which we have seen. It puts the difficulties into which physical science has landed itself by its exuberant progress with point and wit, and with as much clarity as the present apparent impasse will allow. The Victorian "scientist" was essentially a mechanician, and it seemed clear to him that the mathematical statement of the world which he was elaborating must in the end prove complete and satisfactory as a summary of the facts if not as an explanation of them. The philosopher who is now advancing at the edge of such apprehension as is possible to the favoured few realises that the world is not a fact but an evolutionary process in which the separation of mind from matter and of mind from mind must be regarded as unreal. According to the author, the concrete facts of experience are better expressed by the artist or the poet than by the physicist; the authentic tidings of invisible things have been distorted in their scientific analysis. It is all very interesting and stimulating, and very difficult to understand. One feels envious of the next generation, or the next but one, to whom the spirituality of mathematical physics will be plain sailing.

JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XXIV. January–March.—Dr. J. D. Rolleston contributes a paper on recent advances in the ætiology, diagnosis, prophylaxis, and treatment of the acute exanthemata, his conclusions being as follows: (1) The *Streptococcus hæmolyticus scarlatinæ*, described by the Dicks, has more claim than any other organism to be regarded as the causal agent of scarlet fever. (2) Active immunisation against scarlet fever by injection of scarlatinal toxin is still in the experimental stage, but is full of promise. (3) The use of a concentrated scarlet fever antitoxin deserves trial from an early stage in all severe cases. (4) The diplococcus described by Tunnicliff is more likely to be the causal organism of measles than any other hitherto described. (5) The prophylaxis of measles by injection of convalescent serum is of great value in affording temporary protection from an attack or in diminishing its severity if it occurs, and is specially indicated in ill-nourished children under the age of five living in unhygienic surroundings. (6) Active immunisation against measles which offers a more permanent protection against the disease is still in the experimental stage. (7) There is no justification for regarding alastrim as ætiologically distinct from small-pox. (8) Herpes febrilis and herpes zoster, though closely related are ætiologically distinct from one another.—In a paper entitled Petit Mal or Cardiac Disturbance Dr. G. A. Sutherland, who records two illustrative cases, remarks that, in connexion with attacks suggestive of petit mal, tachycardia may be present without other obvious cardiac changes. The symptoms of an attack are present only during the period of paroxysmal tachycardia and usually accompany the onset of the new cardiac rhythm. An attack is often definitely induced by excitement or bodily exertion. While an organic basis of disease in the heart may be present, a similar condition of paroxysmal tachycardia may occur in hearts organically sound.—In a paper on Microcephaly Dr. T. Brushfield and Dr. W. Wyatt describe the pathological changes in ten cases of true microcephaly observed at the Fountain Mental Hospital. They point out that whereas all the cases during life were more or less alike, the pathological lesions differed considerably. Whatever the lesion in the cerebral hemisphere the result was the same—viz., destruction of the upper neurons of the pyramidal tract. The unantagonised influences from the extrapyramidal tracts and probably from the cerebellum also, which is usually well-developed, explains the clinical features of paresis and rigidity.—Dr. R. Richards contributes a paper on bacillary dysentery in Aberdeen, his conclusions being as follows: (1) The occurrence of true bacillary dysentery among the general population is not so uncommon as is usually stated. (2) Treatment by magnesium sulphate is almost specific for bacillary dysentery. The diet is almost equally important. No food or liquid which leaves a residue is permissible. (3) Apart from bacteriological examination the following points are of diagnostic assistance: (*a*) the macroscopic appearance of the stool, which is like scraps of flesh in raw meat juice; (*b*) the microscopic appearance of the stool, a smear of the fæces showing abundance of polymorphonuclear leucocytes. Many "ghost" cells and macrophages.—The abstracts from current literature are devoted to tuberculosis.

CHINESE JOURNAL OF PHYSIOLOGY.—The Chinese Physiological Society, the headquarters of which is at the Pekin Union Medical College, is composed of native and foreign physiologists, biochemists, and pharmacologists, and its members have long felt the need of a publication to stimulate scientific research in that backward country. They have, therefore, with admirable courage, launched this quarterly journal as a symbol of the desire of the Chinese to help themselves, and to do so in "the spirit of international goodwill and coöperation manifested by all men of science." The journal is printed in English, as the language most practically useful to the bulk of the physiological world. The first number contains articles on the effect of starvation on the intestinal epithelium of the albino mouse; the aconite of Hunan, which has properties comparable with the European varieties; bastard anise poisoning; ephedrine anæsthesia mixtures; the proteolytic ferment of *Cucumis melo*, a Chinese cantaloupe; a method of anastomosing vessels with aluminium couplers; studies on the denaturation of proteins, and other original contributions of merit. The assumption by a Chinese society of national responsibility for contributing to the scientific progress of the world is welcome.

New Inventions.

A EUSTACHIAN SOUND.

SUCCESS in the treatment of middle-ear deafness depends upon a correct Eustachian catheter technique, and inflation of the tympanum and dilatation and medication of the tube have alone survived the test of experience. Most aurists have devised some appliance to this end, or favour some modification or elaboration of technique which has been of help to them in practice. The accompanying illustration of my own small contribution to the matter represents a graduated carrier and a set of flexible Eustachian sounds of stainless steel. The carrier consists of a convenient handle and a stem. The latter measures just 36 mm., the length of the adult Eustachian tube,

and is divided into three sections of 12 mm. each by marks which inform the operator of the depth to which the sound has penetrated the tube. When introduced into the catheter as far as the second division (24 mm.) the bulbous end of the sound is at the isthmus tubæ, a common site of stricture; when the third and last division is reached, the tip of the sound should have passed the tympanic ostium. They cannot replace the indispensable gum elastic bougies of Hunter Tod, nor are they intended to do so, for it is obvious that in the case of a tortuous Eustachian tube they would be both useless and dangerous. But in a straight tube they will pass an obstruction before which the gum elastic bougie bends back and reappears in the pharynx. They have made it possible to introduce a Weber Leil's inner catheter beyond an obstruction otherwise impassable, and in one case of Ménière's symptom-complex with Eustachian obstruction they have given relief where other methods have failed. The graduated carrier also enables a roughened wire armed with a cotton-wool tip impregnated with solution of silver nitrate or other medicament to be introduced for a known distance into the tube. Atropine ointment so applied will relieve some cases of tinnitus, even when otosclerosis is the cause. The sounds can be sterilised by boiling, but cannot break and leave a piece impacted in the Eustachian tube, as the ordinary celluloid sounds have been known to do. There is little originality in this application of well-known principles to a special purpose, but the work for which it is devised is very difficult, and every little helps.

The appliance is made by Messrs. A. Charles King, Ltd., 34, Devonshire-street, London, W.1.

F. PEARCE STURM, M.Ch. Aberd.,
Leigh Infirmary, Lancashire.

THE LANCET.

LONDON: SATURDAY, APRIL 16, 1927.

EVIDENCE AND RUMOUR.

Dr. BERNARD HART's recently published book on "Psychopathology"[1] is an expansion of his Goulstonian lectures, which were fully reported in our columns at the time of their delivery.[2] An added essay on the "Psychology of Rumour," originally written during the war, now brings before a wider public an analysis of a form of behaviour that involves our activities more intimately, perhaps, than intellectual pride will readily accept. Rumour depends not only upon accuracy of transmission, but primarily upon the accuracy of the report of the first individual of the series concerned in its transmission, and Dr. HART accordingly begins with an examination of the psychology of evidence. Historians seem to have been the first to investigate the reliability of evidence, and formerly they did as many of us do now; they accepted the moral character of a writer as the test of his reliability. Now, however, whilst moral character remains important, they take into account every possible condition which may have exerted an influence upon the particular statement under examination; the source of the witness's knowledge, the time interval separating him from the events in question, his views and prejudices, his profession, religion, and political party. They consider, moreover, not only whether the witness is deliberately lying, but whether and how far he is unconsciously perverting the truth owing to the factors just mentioned. On the psychological side STERN, of Breslau, carried out a painstaking research and by actual experiment upset in the most complete and definite manner two widely held views; that evidence given with the best knowledge and honesty is a correct reproduction of actuality, and that evidence which is shown to be false must be due to deliberate lying, or at least to culpable carelessness. In addition, though detail and accuracy are both diminished by lapse of time, the witness's belief in the truth of his evidence is little affected. Legal writers have noted the effect of suggestive questions of discussion subsequent to the event, of prior knowledge and interests, and the impulses to assign satisfying motives and to round off a story.

To the factors noted above Dr. HART applies certain conceptions employed in modern psychology. The word "complex" has now passed into common speech, and if its meaning and full implications were understood with conviction man's attitude to man would be radically changed. A complex is a system of ideas with a certain affective load, or emotional charge, which tends to produce trains of thought leading in a definite direction, and the complex may exert its action without the individual himself being in the least aware that his thinking is so directed. An erroneous belief thus formed is given a superficial plausibility by a process of self-deception termed "rationalisation." The statement that the conduct and thought of an individual are mainly directed by reason is opposed to the teaching of modern psychology; much of the thinking which we imagine to be rational is in reality the result of non-conscious complexes, and the reasons with which we support it are not its basis but secondary products—rationalisations—that serve to hide irrational origin. Even the first stage of memory—perception—is influenced by endogenous factors; complexes exercise a selective action upon it; we see what we are interested in seeing what we expect to see, and are unaware of our interest or our expectation. In the second factor—conservation—perversion may be produced by simple forgetting and by active forgetting or repression, whereby elements may be essentially altered in their character. The third process—reproduction—is influenced by suggestive questions, or by the witness being in the centre of the stage, when the grandiose or "self-assertion" group of complexes comes into action; here arises the impulse to say something effective, to round off the story and fill in the gaps. When he discusses rumour Dr. HART disagrees with those writers who see in crowds intrinsically different mechanisms from those exhibited by their members in isolation. Both LE BON and CONWAY assume that the conduct and thought of the individual are mainly directed by reason whilst emotional behaviour marks the crowd; but the difference is only one of degree. Herd instinct is one of the cardinal factors responsible for the non-rational type of thought and determines the major part of our individual belief and rules of conduct. Genuine rational thinking constitutes but a small part of our mental activities, and in a crowd even this small part may be abrogated so that non-rational thinking becomes more obvious and unrestrained. In war-time rumour there is a probability that widespread and fundamental complexes determined its generic types. Stories of atrocities satisfy one such complex, and the industrious propagation and general acceptance of the report of an enormous increase in the illegitimate birth-rate seem to have owed their existence to phantasies of an obviously sexual origin. But the influence of herd instinct is such that, when maximally stimulated, "its action overwhelmingly dominates the mind, non-rational opinions are disseminated with prodigious ease, and the rational activities, with their capacities for cool criticism, are at a low ebb."

Though written with special reference to a time of war, these last observations can find application in other cases of strife between nations or communities. Except in their form they contain little that has not been enunciated by philosophers of all periods, and that they remain true throughout the ages is a testimony to the strength of the instinctive and emotional forces that influence human conduct.

[1] Cambridge University Press. Pp. 156. 7*s*. 6*d*.
[2] THE LANCET, 1926, i., 585, 700, 795.

THE RETAINED TESTICLE.

THE imperfectly descended testicle, the mechanism of its descent, its pathology and its treatment are of perennial interest to the surgeon, and the Hunterian lecture by Prof. A. H. SOUTHAM and Miss E. R. A. COOPER, which we publish this week, will be welcomed as an important addition to our knowledge. It is pointed out as a remarkable fact that but little light has been thrown on the subject since the days of JOHN HUNTER. Possibly this is because the accuracy of his observations and the soundness of his inferences

established the main anatomical facts and left only details and special points to be elucidated by subsequent observers. ASTLEY COOPER, in his monograph published in 1830 on "The Structure and Diseases of the Testis" gave an account of the descent of the testis and the anatomy of the imperfect organ, but remained silent as to its physiology and pathology. It is because of their bearing on these two last problems that the investigations recorded in the present Hunterian lecture are especially valuable.

It is generally recognised that usually, but not always, an imperfectly descended testicle in an adult is functionless as regards spermatogenesis, though it is generally (but again not always) able to produce the secretion necessary for the development of secondary male characteristics. The reason why spermatogenesis is absent has been the subject of discussion and even of controversy. Two views have been held to explain it. The first is that the failure of function is due to some inherent primary developmental defect; the second is that for the final stages of normal development it is essential for the testis to occupy its correct position in the scrotum. To explain this effect of position it has been suggested that the lower temperature of the scrotum is the essential factor for spermatogenesis, and also that in the scrotum the gland is relieved from the pressure exerted by the diaphragm. The question is important because the answer must obviously influence treatment. If the loss is due to some essential developmental abnormality of the genital gland, the operation of orchidopexy will do nothing to assist the performance of its chief function, whereas if the arrest is due to secondary causes associated with its retained position the surgeon will feel that orchidopexy may not only give a good anatomical result but also—provided it is performed before puberty—promote satisfactory physiological development. To solve the problem Mr. SOUTHAM and Dr. COOPER have compared the macroscopical and microscopical condition of retained testicles with those normally descended in boys of similar ages, and have come to the conclusion that the changes seen in the testicles of adult cryptorchids are secondary. They believe that the retained testis develops normally during early postnatal life, but later undergoes retrogressive changes if it has not reached the scrotum. Other important conclusions are that the younger the age at which a retained testicle is examined the more nearly does it approach normal structure, and that the further the testicle has descended in pre-adolescent life the more nearly does its structure resemble that of a scrotal gland of the same age. The descent of the testicles should be complete, and both should lie in the scrotum by the end of fœtal life, but there is no doubt that spontaneous descent may take place some time after birth. The present investigation indicates that it may occur until the child is three years old, but it is extremely improbable after that age. Cases have been recorded in which descent is said to have been completed at puberty or even later, but fully authenticated examples of this are very rare, a source of error being extreme retraction of a properly descended gland.

It may be concluded that if the functional activity of the testis depends upon its scrotal position during the final stages of development, then its normal anatomical and physiological evolution may be completed if it be placed in the scrotum before secondary changes occur. The latest age for the operation should be about 12 years; the earliest is some time after the third year, up to which time spontaneous descent is still possible. About the age of six years may be taken as a desirable early limit. Besides the restoration of function there are other factors which strongly indicate operation. In the great majority of cases, even when there is no obvious hernia, there is a patent funicular process or potential hernia. The retained testis is also liable after puberty to attacks of disabling pain, possibly due to slight injury or to attacks of inflammation, not to mention the alleged increased liability of the imperfectly descended organ to malignant disease. A further important reason for operation is that in many occupations and professions, including the public services, a retained testicle will be a bar to admission. As operative procedures, the following are possible: orchidopexy, or transference of the testicle to the scrotum; abdominal replacement, or return of the testicle to the abdominal cavity after the hernial sac has been removed; and excision of the misplaced gland. Mr. SOUTHAM and Dr. COOPER conclude—and the great majority of surgeons will agree with them—that orchidopexy is the method of choice. Abdominal replacement, though it has had some strong advocates, should not be performed except in exceptional cases, usually where the condition is bilateral, in which orchidopexy is impossible. Functional development is extremely improbable when the testis is returned to the peritoneal cavity, and the dangers of the condition are not removed. Excision is only very exceptionally indicated in children, though it may be called for in adults where there is one normal scrotal testicle. Above all, it should never be done in bilateral cryptorchids unless there is some special indication such as malignant disease or torsion. One additional point may be mentioned that is not touched on in the lecture. That is, that after a successful orchidopexy growth and development take place not only in the testicle but also in the spermatic cord. If the operation be performed in children between the ages of 6 and 12 it is unusual to find that the vas and vessels are too short to permit of transference to the scrotum. The imperfectly descended testicle is often a very mobile structure, being sometimes palpable at the external ring or in the inguinal canal, whilst at another time it may be within the abdomen. Hence in children it is often possible to transfer to the scrotum a testicle which is apparently abdominal in position. After transference there will usually be some tautness about the cord, but in a few months, as the result of growth and development, the structures will probably be as free and lax as those on the sound side. The conclusions which Mr. SOUTHAM and Dr. COOPER have reached are very encouraging. They confirm many of the clinical observations that have been made, and put them, together with the operation of orchidopexy, on a sound and scientific basis.

THE POLLUTION OF RIVERS.

WHILE the concerted drainage of towns has undoubtedly improved the public health, this improvement has too often been at the expense of the natural drainage channels of the country—its rivers. The effects of river pollution are more apparent in a small, densely populated country, with small rivers, like England, than in continental countries with their larger river systems and more scattered populations. Almost all our rivers, excepting only the Test and the Kennet, are in fact illegally polluted. A factor which, in England, has led to a relaxed public conscience in this matter is the low esteem in which fresh-water fish are held. There is probably no place in England as much as a hundred miles from the sea, and sea fish are obtainable, when desired, everywhere

here. It is not only the discharge of untreated or insufficiently treated sewage which has led to the foul condition of many rivers which once contained large supplies of fish. Industry has played a great part in pollution. Apart from the advantage of establishing works on a *navigable* river, the proximity of any river, however small, provides water for washing, solution, and other such operations, as well as for steam raising and for cooling. It also provides an easy and not too obvious means of getting rid of waste liquors, sludges, muds, pulps, and other by-products of industry. The one-way movement of a non-tidal stream and the oscillatory motion of a tidal one, are means both of removing the matter discharged and of merging its identity with that of other pollutions in the stream itself.

The results of the unrestricted discharge of domestic and factory effluents are all too apparent. Most organic pollution has the one direct result of making a great demand on the oxygen dissolved in water, often reducing it to less than what is a bare necessity for the maintenance of fish life. Mr. H. W. HARVEY of the Marine Biological Laboratory at Plymouth has recently called attention in *Nature* to the positively toxic effect—apart from any question of de-aeration—of the products of putrefaction of some of the proteins present in effluents. Many inorganic matters in factory effluents, such as acids, alkalis, lead salts (which have done much harm in Wales) are definitely poisonous to the smaller life of rivers on which fish feed as well as to fish themselves. It is true, as we have recently taken occasion to point out,[1] that both old and recent Acts of Parliament provide some remedies for the present state of affairs which the many river surveys, conducted by or under the direction of the Ministry of Agriculture and Fisheries, show to be alarming, from the point of view of anglers, nature lovers, and those who consider streams of pure water a necessary feature of a healthy countryside. It does not appear, however, in view of the delicate balance of duties, interests, local advantages, both in rating and employment, from unfettered industrial development, that much will be done by attempts to enforce rather feeble enactments. Much can, nevertheless, be done, especially by members of the medical profession, to quicken the conscience of all concerned with rivers, sewage works and factories. The Thames Conservancy Board is ever watchful and the Port of London Authority is understood to have special powers of its own. The surveys above mentioned have aroused much local interest and medical officers have done good work in the matter. The real difficulties attending the treatment of such discharges as those sent out in the winter from beet-sugar works are to be grappled with by the Director of Research on River Pollution who will be appointed within the next few weeks by the Department of Scientific and Industrial Research. This officer will have a busy time, as apparently all such problems will be referred to him as they arise. As soon as solutions are found every effort must be made to apply them to actual cases of pollution.

When those responsible for river pollution forego their plea of a prescriptive right to pollute, when they find that it is not a necessary result of industry or of "sanitation," that it makes them unpopular with their neighbours, and that all the profits of industry will not be absorbed in rendering its by-products inoffensive, or that sewage treatment should be a means of preventing river pollution, our streams will begin to improve. Very little will be done until it is evident that a considerable proportion of the community desire some action. There are many once beautiful, well-stocked streams in which now the angler cannot find fish, the boy may be poisoned if he bathes, and the oarsman must labour against more than fluid friction. Even these streams could be improved, greatly to the public benefit, by tact, persuasion, and a hint as to legal obligations which might, in the last resort, have to be insisted on.

[1] THE LANCET, 1926, ii., 714.

Annotations.

"Ne quid nimis."

HOSPITAL ALMONERS.

THE small committee, which was later to become the Institute of Hospital Almoners, first met in 1907, and it is a tribute to the foresight of its members that the work has steadily developed along the lines then laid down, while it has also been found possible, in the face of changing conditions, to adapt it without loss of continuity. The formation of the Institute in 1922 as an Incorporated Society marked a definite step in the establishment of the movement and one that seemed in accordance with its growing importance. A general survey of the work of the last 20 years is included in the annual report of the Institute for 1926. The first quarter of the twentieth century has shown an increase in social legislation which affects the details of an almoner's work in many ways. Gradually the State has taken over certain types of social work which were carried through the experimental stages by voluntary agents. In these schemes of coöperation with the State the almoner acts as an intermediary between the authorities and the hospital patient. She ensures that no patient need go without available treatment through lack of knowledge and provides a directly human point of contact with an impersonal system.

A perusal of the reports of the almoners' departments in the various hospitals gives some indication of the growth of the work. The almoner helps hospital patients not merely to carry out prescribed treatment in the face of great difficulties, but is often able to help them to re-establish themselves after the dislocation consequent on illness or accident. Another interesting feature is the growth of research work, carried out in coöperation with the medical staff. In studies of encephalitis lethargica, rheumatism, and cancer, for instance, the careful records kept by almoners of after-care and "follow-up" work provide valuable data. In certain types of disease, too, the number of readmissions to hospital is appreciably lessened by systematic visiting of patients in their homes. The financial aspect of the work has also a real interest and value. The administrative expenses of the department are a comparatively small part of the general costs of the hospital, funds for the social work involved being in many hospitals almost entirely raised by appeals to outside agencies, employers and friends, and by contributions from the patients themselves. Where however, special provision exists for the needs of the patients the work can be greatly extended. For example, the Cicely Northcote Trust of St. Thomas's Hospital enables the almoners to promote the welfare of past and present patients to an extent impossible to achieve when no extra funds are available. The seventeenth annual report of the Northcote Trust is a record of solid achievement. The report emphasises not only the social and economic value of the services rendered, but also the efforts made to obtain a right understanding of the patient's point of view. Last year, for example, the General Strike left its mark on all hospital social service; the Northcote Trust has to its credit during that week of confusion 97 transport journeys with patients, some of them as far away as Southampton and Brighton. Of the ordinary doings of the year, mention may be made of the insulin work, which affords a good instance of the new problems that face the social service departments year by year. After a diabetic patient leaves the hospital ward the supply of insulin has to be maintained. This may necessitate arrangements with the approved societies or with the guardians, but there are patients who do not fall into either category. There is the patient who can afford to pay for his insulin, but in so doing cripples the family resources, especially when the cost of special diet is added. Such a patient may now obtain insulin at cost price through the

hospital dispensary. That this particular piece of work is welcomed by patients and physicians at St. Thomas's is made clear by the chart contained in the report. Here is shown a steady increase in the supply of insulin since the beginning of 1925, culminating in a monthly distribution of nearly half a million units in September, 1926.

This is the aspect of the almoners' work which is likely to make most appeal to the public, but her sterner duties include the prevention of abuse of hospitals by patients who could afford to pay a private doctor, or who are entitled to the services of a panel practitioner and do not require special hospital treatment. In order to ensure that candidates for almonerships are fit for these two-fold responsibilities, the Institute of Hospital Almoners insists on a high standard of education and personality in its students. Of 42 applicants interviewed last year only 30 were admitted. The course of training covers a period of two years, of which four months are spent in the offices of a Charity Organisation Society; during nine months, under the direction of the London School of Economics, physiology, economics, social legislation and administration are studied, after which 11 months' practical work at a hospital under the direction of an almoner completes the course. In 1926 15 appointments of almoners trained by the Institute are reported. Practitioners who are consulted as to a profession by educated women between the ages of 20 and 35 may note that the work will be congenial to many women, while 40 guineas is not a heavy training fee for a profession of growing importance of which the remuneration usually starts at £200, the larger hospitals paying £350 or more to their head almoner.

CONTAGIOUS ABORTION AND MALTA FEVER IN ENGLAND.

THE discovery by A. E. Evans in 1918 that *Bacillus* (*Brucella*) *abortus* of Bang, the organism of contagious abortion in cattle, could hardly be distinguished from *Brucella melitensis*, the cause of Malta fever in man, has turned out to be something more than a bacteriological curiosity. Once people began to look for them, examples of human infection with *abortus* were soon found. Cases of obscure pyrexia due to this organism were described in South Africa and in the last few years quite a number have been identified in the United States. It was obviously only a question of time before the new disease was discovered wherever contagious abortion occurs, which is everywhere that cattle are kept. Last year Dr. G. S. Wilson and Miss M. Nutt showed that the organism was quite common in the milk supplied in Manchester and now Dr. J. Bamforth, in a note published on page 818 of this issue, describes two human cases in or near London. The remarkable thing is that obvious human infection should be so rare. This is quite likely due to the fact that those who drink raw milk are certain to take in small doses of the bacilli and in this way to become immunised without ever having a definite febrile attack; it is known that *abortus* agglutinins are by no means uncommon in the blood of children examined at random. If this is the explanation, the absence of a similar immunisation to *melitensis* in the Mediterranean area needs examination; goats infected with Malta fever probably excrete larger quantities of bacilli. The two infections have been shown to immunise against one another; hence the proposal to protect man against Malta fever with *abortus* vaccination, which may prove useful when it has been tried on an adequate scale. Hence, too, the farmers' custom, widespread in Britain, of running a billy-goat with a herd of cows as a preventive of abortion. In old days, before we were protected by a paternal Board of Agriculture, all the goats in Western Europe were no doubt more or less infected with Malta fever, and our ancestors seem to have found out empirically that small doses of *melitensis* scattered about among their herds by contact with goats were to some extent a protection against the loss of calves which was and still is a very serious matter to the cow-breeder. How far *abortus* fever may correctly be called a "new" disease is largely a question of terminology. If their pathogenic relationships to animals were not so distinct, *abortus* and *melitensis* would be called varieties of a single species, and indeed they are at least as nearly akin as the various forms of, for example, diphtheria and tetanus bacilli, all of which give rise to diseases which as far as we know are identical. Similarly, apart from their pathogenic action, it is difficult to distinguish the bacillus of pseudo-tuberculosis in guinea-pigs from the plague bacillus. The facts raise many fundamental problems for the systematists, epidemiologists, and philosophers. Practically in the present instance there does seem to be some difference: *abortus* infection is generally milder than Malta fever—so mild perhaps it often escapes notice. Moreover, as Dr. Bamforth has shown, it cannot be avoided by living in England where one is fairly safe from the real Malta fever.

BACTERIOLOGY OF HERPES.

IN a recent number of the *U.S. Public Health Reports* (1927, xlii., 171) Alice Evans records the result of investigations with six herpes and so-called encephalitis viruses obtained from different workers. Four of these strains were herpetic viruses obtained from human vesicles. The fifth was the Beckley strain isolated by Flexner, and the sixth was obtained from the brain of a case of acute encephalitis lethargica by Perdrau. From all six samples of virus, either from the glycerinated brain as received from the sender or from the brains of inoculated rabbits, streptococci could be isolated by planting a thick emulsion of infected brain tissue in a cooked meat medium. In some instances masses of cocci could be demonstrated in smears of brain substance stained by Gram's method. Berkefeld filtrates of these brain emulsions heavily inoculated into meat medium also gave rise to cultures of streptococci. A culture from one of the cases inoculated into rabbits produced nervous symptoms. In addition to the streptococcus (details of the biology of which are not given in the article), the author also cultivated spore-producing rod-shaped organisms from all the strains of virus. Details of these organisms, which may also be obtained from cultures of a Berkefeld filter, together with a description of the disease produced in experimental animals are promised in a forthcoming paper.

TORSION OF THE SPERMATIC CORD.

ACCORDING to Dr. Meredith F. Campbell,[1] who reports 15 cases seen in six years at the Bellevue Hospital, New York, the relatively few recorded examples of torsion of the spermatic cord are not a true index of the incidence of this lesion. Only 120 cases were reported before 1920, since when 17 more have been published. Undoubtedly many pass unrecognised under a diagnosis of epididymitis or orchitis and subside without an operation being necessary. Moreover, many cases of unexplained gangrene of the testicle which come to operation have probably been due to torsion of the spermatic cord. In practically all cases some form of congenital malformation has been found. The chief predisposing cause is abnormal mobility of the testicle. Nearly half the patients give a history of imperfectly descended testicle on the affected side. Other anomalies include a spacious tunica vaginalis, elongation of the globus minor, or abnormal attachment of the mesentery to the lower pole of the testis. Sudden muscular effort or violent straining is the most frequent immediate antecedent of the condition. Three-fourths of those affected are young adults, but torsion of the cord has

[1] Surgery, Gynecology, and Obstetrics, March, 1927.

been found in boys and even in infants. The onset is sudden with exquisite pain in the testis followed by localised swelling. There is often drawing up of the organ, probably due to reflex contraction of the cremaster muscle. Then follow nausea, vomiting, chills, fever, and not infrequently pain in the lower abdomen originating in the spermatic cord. The temperature in uncomplicated cases is rarely above 100° F., but in some cases may reach 104°. With the onset of gangrene the pain diminishes or may disappear entirely. In cases in which gangrene does not develop the early tenderness gradually subsides, but for weeks the testicle remains slightly sensitive to deep pressure. When the affected testis is in the inguinal canal local and general symptoms are exaggerated and there is often a localised peritonitis. The correct diagnosis is rarely made before operation, and depends chiefly on the acuteness of the onset and on the severity of the symptoms, which tend to diminish with the progress of the disease. Gangrene or atrophy follow in 86 per cent. of cases not relieved immediately. Operation before gangrene has occurred has often saved the testis, but it has afterwards atrophied. Torsion may be prevented by suturing the undescended testis before puberty to the bottom of the scrotum. Treatment consists in immediate operation to deliver and unwind the testicle. If the testis and epididymis are viable the cord should be untwisted, the tunica vaginalis inverted, and the organ sutured to the bottom of the scrotum, as was done successfully by Dr. Campbell in three cases. If the testicle is not viable, orchidectomy should be performed.

THE DUAL NATURE OF VITAMIN B

OBSERVATIONS on the physiological rôle of vitamin B (the anti-beri-beri vitamin) have been conflicting, but J. C. Drummond and his co-workers at University College are clearing the ground. Many of their experiments contradict those of earlier workers. For instance, E. Abderhalden's claim, that there is a great reduction of oxidative activity in the tissues of animals suffering from beri-beri, could not be confirmed, nor could R. A. Dutcher's observation that the administration of thyroid extract confers benefit on animals suffering from beri-beri. The extreme anorexia for the deficient diet may perhaps be regarded as one of the most important consequences of deprivation of vitamin B. Many of the observed symptoms, including lessened metabolism and lowered body temperature, are symptoms of inanition; and when other of the experimental results are interpreted in the light of the great fall in body-weight, which always occurs, many of them lose their significance. G. A. Hartwell discovered [1] a quantitative relation between the amount of protein and the amount of vitamin B which favour normal nutrition. The workers at University College have confirmed this; they find that when the amount of protein in the diet is as high as 70 per cent., yeast extract to the amount of 16 per cent. is required to obtain normal growth, whereas if the protein is only about 20 per cent. of the diet, 4 per cent. of yeast extract will suffice. C. Funk and some of the earlier workers held that there was a quantitative connexion between the amount of vitamin B in the diet and the amount of carbohydrate which could be tolerated, but it now seems that the connexion is with the protein rather than with the carbohydrate of the diet. Vitamins continue to multiply and evidence has been obtained that vitamin B, as found in yeast extract, is dual in nature, one part being stable and the other unstable to heat in the presence of alkali; it is the stable fraction which negatives the detrimental effect of excess protein. M. H. Roscoe working at the Lister Institute found [2] that young rats, fed on a diet deficient in vitamin B, collapsed with neuritic symptoms about the twenty-fourth day; the collapse could be cured with alcoholic extract of yeast. If the rats continued on the same diet, together with the addition of the alcoholic extract, a fresh and very severe syndrome of "pellagrous" symptoms made its appearance. These symptoms, which consisted of loss of hair and œdema, yielded to the administration of yeast autoclaved at 120° C. for five hours, which had no effect at all upon the neuritic symptoms. The pellagrous symptoms in rats were first described [3] by J. Goldberger, who also made the observation that human pellagra is cured by administration of autoclaved yeast. It has remained, however, for Roscoe to place the duality of vitamin B beyond doubt.

[1] Biochem. Jour., 1924, xviii., 785; and 1925, xix., 1075.
[2] Chemistry and Industry, 1927, xlvi., 269.

POST-GRADUATE INSTRUCTION: AN INNOVATION.

PRACTITIONERS seeking post-graduate instruction fall into several categories of which the two chief consist of senior practitioners seeking to brush up the knowledge acquired as students, and junior men who are endeavouring to secure the highest medical qualifications. The rapidly increasing numbers of candidates for the Membership of the Royal College of Physicians of London proves there are many of the second category. We are interested to learn that in an endeavour to help such candidates the staff of the Middlesex Hospital has just completed a very successful course, specially designed to provide facilities in advanced clinical medicine. Every member of the medical side of the staff took part in the course, which included demonstrations and instruction in dermatology, neurology, public health, medical anatomy and pathology, as well as ordinary clinical medicine. Candidates were kept fully occupied from 10 A.M. until 4 P.M. daily during four weeks, the main work consisting in examining cases in the mornings and undergoing viva voce examination on them in the afternoons. Lectures did not exceed four per week, but the clinical material in the wards was supplemented by the demonstration of many cases selected from out-patients. We understand that the course proved so attractive that many candidates had to be refused; even so the numbers were such that it may be necessary to limit them more strictly in the future. Different hospitals have their own ways of providing such courses in advanced medicine, and it is certainly desirable that they should be readily available. The success and popularity of the Middlesex course is good evidence of the constant improvement in medical teaching and of the desire for progress amongst the profession at large.

MACULAR COLOBOMA.

THE ophthalmoscopic appearance generally known as macular coloboma is the subject of an interesting paper by Miss Ada C. Mann in the *British Journal of Ophthalmology* for March. According to her the title is a misnomer and she adduces arguments to prove that the defect is not a developmental one at all. The alternative view is that the appearance is the result of pathological changes similar to those that are seen following localised choroiditis in adult life. The theory that coloboma maculæ may be due to a hæmorrhage at birth cannot be altogether excluded, and in this connexion observations on cases which are definitely known to have shown intra-ocular hæmorrhage at birth are much to be desired. The theory that is most favoured by Miss Mann is that macular coloboma is a late result of intra-uterine choroiditis from an infective focus derived from the placental circulation some time between the third month of fœtal life and birth. She distinguishes between three types. The least rare form of the defect is the pigmented type in which there is heaping up of pigment, destruction of the chorio-capillaries, but retention of normal retinal vessels which may course over the patch. This type points to a comparatively mild attack of choroiditis or one occurring

[3] Public Health Reports, Washington, 1926, xli., 1924.

in the later months of fœtal life. The second and rarer type is non-pigmented, in which all choroidal and retinal structures have been completely destroyed and replaced by scar tissue with generally some ectasia of the sclera. This may be due to a choroidal infection in the earlier months of fœtal life when the tissues are less formed and less resistant to attack. A third type is still rarer in which the macular coloboma is associated with abnormality of blood-vessels. A case has been recorded in which a persistent hyaloid vessel emerged from a macular coloboma. Miss Mann points out that by no possibility could a hyaloid artery enter the eyeball at the macula instead of at the disc, and her ingenious explanation is that at a very early period of fœtal life—before the end of the third month—an inflammatory process beginning in the macular region caused an adhesion of an adjacent branch of the hyaloid artery and that a perforation of the optic cup at the weak spot allowed a ciliary vessel to communicate with this so that it retained its patency long after all other remains of fœtal structures had disappeared. Such studies as these have a practical importance, for if it can be shown that certain congenital conditions are infective in origin and not developmental, we are at once able to exclude any relation to an innate hereditary defect in these particular cases.

VACCINES AND THE COMMON COLD.

IN the current number of the *Journal of Hygiene* (vol. xxvi., No. 1) is a paper by Fergus R. Ferguson, A. F. C. Davey, and W. W. C. Topley, describing an attempt to discover whether there is any value in prophylactic inoculation against the common cold. Their results were significant. A population consisting of students of the university and members of the departmental staffs was inoculated during October and November, and the subsequent incidence and severity of colds amongst them was recorded for the period ending on the last day of the following May. The mixed vaccine employed was of a type which has been widely used in this country and contained eight different organisms or groups of organisms; three immunising doses were given at weekly intervals. The experiment was as adequately controlled as it possibly could be, as might be expected in work emanating from the Department of Bacteriology and Preventive Medicine of Manchester University. The population examined numbered 286, of which 138 were immunised and 148 served as controls. Every precaution was taken to ensure that this division was a fair one. For example, a certain number of the population desired to be immunised, whilst others wanted to serve as controls, and it was necessary to guard against the inoculated population containing an undue proportion of individuals who would be influenced in favour of the treatment because they suffered from colds. The relevant facts concerning the fate of the inoculated and the uninoculated are briefly as follows: 138 inoculated persons at risk suffered from 203 colds, giving a mean number of colds per person of 1·47; 148 uninoculated persons suffered from 168 colds, or 1·14 per person. As regards the severity of the infections, the mean duration of the colds in days was 13·0 among the inoculated and 10·7 among the uninoculated, and the percentage of colds associated with fever was 25·1 among the inoculated as compared with 19·0 among the controls. The only possible conclusion is that prophylactic vaccination with the stock vaccine used is valueless, but the investigators are doubtful whether the evidence justifies the conclusion that the inoculations actually did harm. These results are in general agreement with those obtained in two experiments carried out in America in 1921, and constitute a body of evidence which it is difficult to ignore. Influenced by the results of antityphoid inoculations even those who can see little reason to look for good results from therapeutic inoculations have been prepared to accept the value of prophylactic vaccination against colds as well as against many other diseases. But the evidence in their favour has largely been based on uninstructed lay opinion, and Prof. Topley and his colleagues point out that the reports of individual patients are worthless as evidence of efficient prophylaxis; they find themselves in agreement with E. O. Jordan and W. B. Sharp,[1] who investigated the same problem and remarked that "'Satisfied patient' conclusions differ widely from those of controlled statistics." Although the difficulties of adequately controlling methods of treatment in the severer diseases are obvious, the minor maladies are susceptible to a more rigid investigation, and it is to be hoped this type of experiment will be extended. Dr. A. I. Simey suggested not long ago[2] a combined test-effort on the part of medical officers of public schools.

DEATHS FROM DISEASE IN THE CROWN COLONIES.

IN reply last week to a question addressed to him in the House of Commons, the Colonial Secretary supplied a statistical table, singularly complete, setting out the number of deaths attributed to certain specified diseases which occurred in Crown Colonies during the years 1923–25. From this table it is clear that blackwater fever still remains a most potent form of death in the Central African Colonies, especially amongst the European population, and the largest number in a single year (23 in 1925) are recorded from the Uganda Protectorate, while Tanganyika Territory holds the second place in the East, and on the West Coast Nigeria heads the list with a total number of 31 deaths in three years. This most dreaded of tropical fevers hardly features as a cause of death in the other protectorates (of which 39 are cited), save in the case of Malaya, Palestine, and British Guiana. Yellow fever accounted for 19 deaths on the Gold Coast during the period under review, and for 15 in Nigeria. Fortunately it is unknown elsewhere, save in British Honduras where it accounted for one fatality in 1924. Small-pox is recorded as the cause of death in 66 cases in Kenya in 1925, and or numerous others both in East and West Africa, though the returns are obviously far from complete; but no variola fatalities are recorded from the Unfederated Malay States, from British Guiana, or from the West Indies. Epidemic encephalitis has been noted in Kenya (two in 1924), Malta (20 deaths), and the Straits Settlements (2). Epidemic cerebro-spinal fever is the most deadly and widespread according to these returns; thus fatal cases are recorded in all the 39 protectorates and colonies on the list. On the Gold Coast 408 fatalities are recorded, from Uganda 367, from Ceylon 312. Though less prevalent than in West Africa, it is a potent cause of death in the West Indies. It is instructive to note that fatal cases of anterior poliomyelitis are recorded sparingly from Central Africa, the Malay States and Fiji, though the aggregate number from this cause is small (a total of 45 in three years). These are some of the deductions which may be made from figures which must have taken much time and trouble to collect and compile. Those who wish to follow the trend of fatal disease in some of the most important parts of the British Commonwealth should turn to the figures as given in Hansard of April 6th.

MISUNDERSTANDING OF PANEL PRESCRIBING.

THE regulation and supervision of prescribing in insurance practice appear still to be misunderstood in some areas. A correspondent who is given prominent place in a responsible Edinburgh journal makes the absurd statement that the total cost of the drugs which a panel doctor may give his patient in a full year must not exceed the sum of 1*s.* 10*d.* per person on his list. And he adds, by way of illustration, that 12 doctors were called upon to pay sums varying from £5 to £50 for giving their patients medicines of a

[1] Jour. Inf. Dis., xxviii., 357.
[2] THE LANCET, 1925, ii., 1053.

total value of more than 1s. 10d. per person on their lists. The fact is that excessive prescribing is difficult to define and is only regarded as proven after very careful investigation and review by the panel committee of the area in which the doctor practises. In the first instance the figures of the practice under examination are compared with those of the insurance area. A striking divergence from the average leads to a minute examination of the prescriptions issued by the practitioner. The explanations given by the practitioner of any peculiar or unusual prescriptions are carefully noted and considered by his professional colleagues who know the circumstances of the practice and are in the best position to judge whether the prescriptions are justifiable. It is only when the prescriptions given are found to be unnecessarily elaborate or the drugs chosen to be exceptionally expensive or ordered in wasteful quantities that a charge of excessive prescribing can be substantiated. The Insurance Acts require that each patient shall receive "proper and sufficient medicine for the adequate treatment" of his illness. The practitioner is primarily the judge of what is proper and sufficient, but if the drugs used are unusual in quantity or of exceptionally high cost then the practitioner may be called on by his colleagues to justify the employment of that particular form of treatment; for in the use of public money he must exercise economy, and in the administration of a public fund partly derived from a Treasury grant the authorities have set up machinery for seeing that the money is rightly expended. But no hard-and-fast rules have been made and no datum line has been fixed. The factors vary with the conditions of each practice and the practitioner is given every opportunity of setting out all the circumstances which in his opinion increase the amount of his drug bill. After the panel committee has had the practitioner before them their report is considered by the insurance committee whose function is mainly to see that the standard of treatment of the insured person is not being lowered to the detriment of the service. It should hardly be necessary to point out the existence of machinery which safeguards both the patient and the prescriber.

THE Irish newspapers state that the Government of the Free State is in a position to introduce legislation within the next few weeks to settle the question of medical registration within its boundaries. It is believed that the scheme to be introduced will be purely domestic, and will be in addition to, and not in substitution for, the present arrangements for registration by the General Council of Medical Education and Registration. If the published forecasts are true, a Register will be established in the Free State, under the control of a Council, and any Irish citizen proposing to practise in the Free State will be required to enter his name on this Register. On the other hand, it is suggested that persons other than Irish citizens who desire to practise in the Free State will be at liberty to do so, provided their names are on either the Irish Register or the General Register. The existing right of entry to the General Register of persons educated and qualified in Ireland will not be interfered with. If the proposed changes do not touch on the position and powers of the present General Council, legislation at Westminster will not be required.

IN connexion with the annual meeting of the French Congress of Neurology and Psychiatry, the Medico-Psychological Society of France has decided to celebrate at Paris, on May 30th and 31st, the centenary of the death of Pinel and of the birth of Vulpian. The French Ambassador has asked His Majesty's Government to inform British learned societies of this fact and to convey to them the invitation of the Medico-Psychological Society to be represented at this double centenary. Universities, faculties, and societies are asked to furnish the French Ambassador, as soon as may be convenient, with the names of any official representatives whom they may wish to send.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXIX.

FRACTURES OF THE CLAVICLE.

FRACTURE of the clavicle is a very common injury both in children and in adults. Treatment should be directed to the rapid restoration of the function of the shoulder-joint, the actual position of the bones or the deformity being a secondary consideration. It may be that sometimes the prevention of deformity is considered to be of paramount importance, but these cases, usually young women, are exceptional and require special treatment.

Bad results after fractures of the clavicle are nearly always the consequence of elaborate methods of immobilisation intended to "set the fracture" correctly, which tie the arm to the side for a long period and so produce stiffness of the shoulder. A consideration of two types of case will serve to prove the contention that preservation of the function of the shoulder-joint is much more important than elaborate fixation of the fragments. In the first place, patients from whom, for some reason or other, the clavicle has been altogether removed, whether for new growth or osteomyelitis, show excellent and unimpaired function of the arm and shoulder; in the second place, the victim who survives an accident so serious that because of other injuries the broken clavicle has had no treatment but a simple sling will have a perfectly strong arm, though the collar bone may have united with some degree of angulation and with much excess of callus.

Fractures without Displacement.

In all those cases, therefore, in which fracture of the clavicle is unaccompanied by displacement no immobilisation is required. This applies both to greenstick fractures in children and to fractures of the outer end of the clavicle in the neighbourhood of the coraco-clavicular ligaments in adults. The arm should be supported in a sling which should take a good hold of the elbow and support the weight of the limb. Every day light massage should be applied to the neck, shoulder muscles, and arm, and the limb should be lifted up to a position of full abduction and supported in this position during most of the massage treatment. In three weeks to a month firm union and good function should be secured.

Fractures with Moderate Displacement.

The main problem of treatment concerns cases of fracture of the middle of the clavicle with marked displacement of the bony fragments. The sternal end of the bone is drawn upwards by the sterno-mastoid muscle, whilst the acromial end is displaced downwards by the weight of the arm and inwards by the pectoralis major. It is not easy to influence the position of the sternal fragment, and treatment must therefore be directed to bringing the distal or outer fragment into as good alignment as possible with the inner end of the bone. Two adjustments are necessary—viz., the lifting of the shoulder which takes the outer end of the clavicle with it, and the pulling of the shoulder backwards, so as to exert traction on the clavicle and reduce the inward displacement of its outer end. Both these adjustments are usually quite easy, even without the use of an anæsthetic, although the latter may be necessary in the case of a nervous, frightened patient. It is, however, more difficult to maintain this reduction than to effect it in the first place. The time-honoured methods which have found so conspicuous a place in text-books consist in fixing the arm to the chest by means of bandages or adhesive strapping. But these methods are quite contrary to the principle of conservation of the shoulder-joint function, which, as explained above, should be the main object aimed

at. Particularly is this true of Sayre's method in which after shaving the chest the arm and chest are enveloped in adhesive plaster and so left for several weeks.

The most important act in adjustment of the fracture is the backward pull of the shoulder. The surgeon should stand behind the patient and pull both shoulders back, keeping the body in position, if necessary by means of his knee placed between the shoulder-blades. Whilst the shoulders are strongly held back, they are fixed in this position by a figure-of-eight bandage which goes over each shoulder and under each axilla, crossing over the middle of the back. Or, instead of the simple bandage, a straight splint may be applied across the back of the shoulders which are then tied back to it. It is a matter of opinion whether the simple bandage or the splint is the more efficient method and a few further words may be said about each. The figure-of-eight bandage ought to be put on over a vest, which will prevent the skin from becoming rubbed or sore. The bandage itself should be of stout material—e.g., calico—so that it will not stretch, and if in an out-patient there is any doubt as to its being tampered with, it is wise to use a wet starched bandage (made from crinoline muslin). The splint is perhaps neater and lighter than the bandage if it is made of a piece of three-ply wood, but it is apt to get out of position if the patient is at all round-shouldered, when the splint rides upwards. This should be prevented by the use of adhesive strapping which fixes the splint to the body below.

After the backward adjustment of the shoulder has been made and fixed, the arm as a whole is raised and so supported by a firm sling, which runs under the elbow and over the opposite side of the neck. It is better to have this made of a band of calico or other firm material 6 inches wide than to trust to the ordinary triangular sling. The band sling should be securely adjusted at the elbow (making a slit or pocket in the sling for the bony joint) and both elbow and the neck should be protected by soft felt or wool from undue pressure.

After-treatment. — After the fracture has been adjusted and fixed an X ray should be taken to determine the relative position of the fragments, which may, if necessary, be modified when the bandages are readjusted. But it is quite unnecessary to secure perfect anatomical restitution and a certain amount of overlapping or of angulation can be ignored without fear of a bad result. The third day after the accident, and on every following day, the arm is released from its sling and some massage and movements administered. The method and degree of this after-treatment are very important and should only be undertaken by a responsible person accustomed to work with the surgeon. Careless manipulation quite defeats the object of the treatment, and if a trustworthy masseuse is not available it is much better to leave the arm untouched for a week or for the surgeon himself to undertake the dressing. For the first week or ten days (we are still considering a case where there was marked displacement) the daily after-treatment should be carried out with the patient in a recumbent position on a hard couch with the affected shoulder over the edge. In this way the tendency for the shoulder to drop down or to be pulled forwards will be prevented. The figure-of-eight bandage or the back splint need not be disturbed. The sling is removed from the elbow, massage is given to the muscles of the neck and arm, and the shoulder is gently moved to a moderate degree of abduction. This abduction movement need only be done once in each treatment. After about ten days or a fortnight the bandage and splint may be removed from the back of the shoulders and the treatment carried out with the patient sitting up.

Fractures with Considerable Displacement.

If the displacement of the fracture should be considerable, taking an upward and forward angulation, and if this occurs in a leisured person it may be wise to begin the treatment by a week or two in bed. The mattress should be firm and hard, the patient should lie at the side of the bed with the shoulder and arm over the edge supported on a stool which is on a level lower than that of the bed. In this way the weight of the arm makes the shoulder fall outwards and backwards, and as the muscle spasm subsides the bone comes to lie in a good line.

Complications.

There is probably no long bone in the body the fractures of which are so seldom accompanied by serious complications, or which so seldom require operative treatment. Text-books all mention an alarming list of possible special complications of fracture of the clavicle, these being injuries to the brachial plexus, the subclavian vessels, and the pleura or lung. It is true that such injuries may be associated with a break of the collar bone when a severe direct blow has been received on the shoulder or over the root of the neck. We became familiar with these complex injuries during the war. But in any such composite injury, the fracture of the clavicle is only a minor incident and its treatment should be relegated to a secondary place. The idea that splinters of the broken bone may be driven into the vessels, nerves, or pleura is probably far-fetched if not entirely imaginary, whilst the idea that excess of callus may cause injurious pressure on these structures is still less supported by fact.

Non-union of a fracture of the clavicle is exceedingly rare, so much so that its possibility may be ignored. For these various reasons open operative treatment of the fractured clavicle is practically never required unless an exposure is demanded for some other reason, and then the broken bone may be fixed by some form of internal fixation, the use of kangaroo suture after drilling being generally the best.

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Surgeon to the Bristol General Hospital; Professor of Surgery, University of Bristol.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

J. D. Sayers, T. L. J. Barry, L. P. Sayers, and E. W. Bingham to be Surg.-Lts.

Surg.-Lt.-Comdr. J. B. Crawford to be Surg. Comdr.

ROYAL ARMY MEDICAL CORPS.

Capt. R. L. Ritchie to be Maj. (Prov.).

Capts. to be Temp. Capts. and temporarily relinquish the rank of Capt.: J. A. Quin and E. A. Tozer.

Capt. P. R. O'R. Phillips is restd. to the estabt.

ARMY RESERVE OF OFFICERS.

Maj. J. W. G. H. Riddel resigns his commn. and retains the rank of Maj.

TERRITORIAL ARMY.

General List—Lt.-Col. D. Shannon resigns his commn. and retains his rank, with permission to wear the prescribed uniform. 2nd Lt. R. M. Gordon, late R.A.F., to be Lt.

ROYAL AIR FORCE.

Flight Lt. J. G. Skeet relinquishes his temporary commission on completion of service.

INDIAN MEDICAL SERVICE.

Maj.-Gen. W. H. Ogilvie to be Director of Medical Services, and Col. W. R. Blackwell, R.A.M.C., to be Deputy Director and Director of Hospital Organisation.

Maj.-Gen. O. L. Robinson, R.A.M.C., vacates the appointment of Director of Medical Services.

Temp.-Lts. Khushi Ram and Rattan Chand to be Temp. Capts.

Special Articles.

SCIATICA.

BY JOHN H. ANDERSON, C.M.G., C.B.E., M.D. MELB.,
PHYSICIAN, RUTHIN CASTLE (DUFF HOUSE).

THE term sciatica is generally used to describe pain referred to the roots, trunk, or branches of the sciatic nerve. Sciatic pain may arise from many causes, and the first step in treatment should be an attempt to make as accurate a diagnosis as possible regarding the nature of the cause and its position. It is only when this has been done that the practitioner can embark on a line of treatment which he can follow with peace in his own mind and with real benefit to his patient.

The sciatic nerve springs from the fourth and fifth lumbar and the first and second sacral spinal nerves, and is widely distributed over the lower limb, both to muscles and skin.

Ætiology.

Pain in its area of distribution may be caused by :—

A.—Causes within the nerve sheath.

1. Localisation of a polyneuritis.

(*a*) Diabetes (degeneration in nerve filament).
(*b*) Alcoholic or arsenical poisoning (parenchymatous degeneration of small terminal branches).
(*c*) Lead poisoning (degeneration of motor neurons).
(*d*) Syphilis, especially in tabes dorsalis (degeneration the afferent neurons in the posterior spinal roots).
(*e*) Gout.
(*f*) Diphtheria (acute degenerative changes in cord).
(*g*) Anæmia.
(*h*) As a sequel to herpes zoster involving the sciatic nerve (spinal ganglia affected).

2. New growth involving nerve sheath, syphilitic, tuberculous, malignant, &c.

3. Neurofibrositis. (Syn. interstitial neuritis or perineuritis of the sciatic nerve, sciatic neuritis, idiopathic or essential sciatica).

B.—Causes outside the nerve sheath.

1. Pressure.

(*a*) Direct pressure; sitting on hard seat, unconscious patient "lying on nerve."
(*b*) Fœtal head during, or forceps at termination of, pregnancy.
(*c*) Tumours of pelvic girdle or tumours arising in pelvis. Includes malignant, syphilitic, or tuberculous disease of lower part of spine or sacrum; carcinoma of rectum, ovary, uterus; ovarian cyst; fibromyomata of, or retroverted uterus; tumour or meningitis of lower part of spine or cauda equina; pelvic gummata; psoas abscess; callus after fracture.
(*d*) Constipation.
(*e*) From static abnormalities, producing an effect through muscular contractions, as in flat-foot and perhaps spondylitis deformans.

2. Referred pain.

(*a*) Hip-joint or sacro-iliac disease; septic, tuberculous, or rheumatic. This may also act by direct spread to nerve sheath.
(*b*) Knee-joint disease.
(*c*) Local irritation at any point of distribution of the nerve.

The above furnishes a working classification, but the mode of action of a specific cause may, of course, vary from time to time. Thus in spondylitis deformans it is doubtful whether the cause of pain in the sciatic nerve is a neurofibrositis, due to the toxin or infection which produces the spondylitis deformans, or to irritation of nerve roots, or a pressure effect, following a viscero-motor reflex on the part of the adjacent muscles.

Differential Diagnosis.

The differential diagnosis is often very difficult, but the following points may be noted. In diabetes the urine and the blood-sugar should be examined; alcoholic and arsenical poisoning, the history; lead poisoning, the gums, and blood for a punctate basophilia; diphtheria, the history, and cultural examination of nose and pharynx; anæmia, the blood; gout, history, and examination of joints, blood uric acid; herpes, history, and signs of recent scarring; in pelvic tumours, as a rule, pain is bilateral, less severe, and not limited to distribution of sciatic nerve, tenderness absent after pressure on, or stretching nerve, loss of function is early, patches of anæsthesia or paresis correspond to root rather than to nerve distribution, may be primary elsewhere particularly breast or testicle, rectal and vaginal examination necessary; tumours of cauda equina often show disturbance of rectal or vesical sphincters; in psoas abscess there is inability to extend leg backwards without pain; X ray examination (with stereoscopic and lateral views) is necessary to exclude bony or articular disease of lower part of spine and pelvis; syphilis is shown by history and blood Wassermann reaction; in osteo-arthritis of hip-joint X ray is useful, and the patient is unable to bear backward pressure on the knee when it is flexed and outwardly rotated, so that the foot of the affected side rests on the knee of the sound side. These are some of the points to be considered in separating a neurofibrositis of the sciatic nerve from conditions which may simulate it.

J. P. Martin (in THE LANCET of May 22nd, 1926, p. 991) puts the position shortly as follows :—

> "Most diagnostic errors will be avoided if it is remembered that (1) in sciatica the inflamed nerve is always tender; (2) since the sciatic nerve sends no branches to the front of the thigh any condition in which the pain extends to the front of the thigh or groin is not sciatica alone; (3) sciatica causes no muscular paralysis and no gross sensory loss; (4) it may abolish the ankle-jerk but never the knee-jerk."

Sciatic Neuritis.

True sciatic neuritis or neurofibrositis is characterised by changes in the connective tissue which surrounds and binds together the nerve-fibres into nerve trunks. The parts affected become swollen and pink, the sheath is distended, and when the inflammatory process subsides there is cicatrisation which frequently causes permanent shortening of the nerve trunk.

The pathological condition explains why the pain is generally unilateral, more or less constant, worse on movement, coughing or stretching the nerve, and not completely removed by absolute rest, as is the case in lumbago. In addition, tenderness is present on pressure over the nerve. Treatment should be directed to removal of the cause, when it can be found, as well as to palliative treatment during an attack.

The common causes of sciatic neuritis may be set out in the following groups :—

1. Toxic or infective.

(*a*) The toxins of acute infections as influenza, malaria, &c.
(*b*) From foci of infection elsewhere in body. Any chronic infection may act as a primary, but the most usual sites are head sinuses, teeth, tonsils, gall-bladder, kidney, urinary bladder, and, lastly, the alimentary tract as in appendicitis, colitis, diverticulosis, or chronic constipation.

2. Exposure to colds and chills, the so-called "rheumatic group."

3. A group associated with spinal disease, particularly spinal arthritis and sacralisation (bony union between the transverse process of the fifth lumbar vertebra and the sacrum).

4. Infection following direct injury as in stabs or gunshot wounds.

Continental writers place great stress on the association of spinal arthritis and sciatic neuritis. Putti lays down that essential sciatica is synonymous with spinal arthritis. Such arthritis is regarded as being generally secondary to congenital abnormalities in the articular facets of the lower lumbar vertebræ. Sicard holds that the funicular parts of the fourth and fifth lumbar spinal nerves are involved as they pass through the intervertebral foramina in close relation to the vertebral bony articulations. Disease in these articulations may cause pain in the adjacent nerves

either by pressure or by direct spread, and can only be detected by stereoscopic and lateral X ray examination

It will be seen, then, that the preliminary treatment of "a case of sciatica" may, in addition to a careful history and clinical examination, demand a great deal in the way of special investigation, including X ray examination of head, teeth, gall-bladder (cholecystography), alimentary canal by opaque meal and enema, and of pelvis and spine; an examination of the blood including a Wassermann reaction: cultural examination of urine and fæces and investigation of any system or organ to which attention may be directed by the history or physical examination.

Treatment of an Attack.

General management.—The patient should remain in bed, in a warm, well-ventilated room, with the affected limb covered by a special bed sock, and, if necessary, the hip enclosed in a light cotton-wool or thermogene dressing. While a soft bed is generally preferred it should not sag so as to cause lateral flexion of the lower spine. Splinting is theoretically right but, as a rule, wrong practically, though the leg may be held in place by sandbags or by a pillow between the knees. The diet should be light and nourishing, containing plenty of fruit and vegetables if constipation is suspected. Alcohol is not advised.

Local treatment: (*a*) *Anodyne.*—Heat is always grateful either as a poultice, hot bricks or sandbags, radiant heat, antiphlogistine, hot-air baths, or the humble hot-water bottle. If special appliances are used, a treatment towards bedtime will often help to promote sleep. The application of belladonna, mesotan, or analgesic balm along the course of the nerve is sometimes soothing. Where other measures fail dry cupping may give relief.

(*b*) *Counter-irritant.*—Blisters, painting with iodine, or a stimulating liniment have their advocates, but should be used with great care lest a local skin condition be produced, and the last state be worse than the first.

(*c*) *Massage.*—In the early stages the only massage tolerated is of a light superficial nature, and is most soothing when combined with a radiant heat bath. Later on, deep massage may serve to break up nodules and loosen adhesions, but must always stop short of causing subsequent pain.

Electrical and injection treatments.—These have been fully dealt with by Dr. J. P. Martin in THE LANCET (*vide supra*). This excellent article gives full details, and the present writer can only suggest that in some cases ionisation does seem of value, when other means fail, and that diathermy across the pelvis will occasionally bring relief.

Medicinal.—Certain drugs are thought to influence the duration of the attack, and among these the iodides hold pride of place. A convenient form is Lugol's solution, starting with a drop in a tablespoonful of water, three times a day, increasing three drops a day, till 30 drops are taken daily and then reducing at the same rate. An alternative is to give ten drops of the tincture of iodine in milk, night and morning, gradually increasing the dose up to 25 drops and then decreasing. In late stages of the attack the combination of guaiacum and sulphur is useful, either as confectio guaiaci co. (the well-known "Chelsea pensioner") or as tabloid guaiaci et sulphuris (B. W. and Co.). A combination the writer has found useful is: pot. iod., gr. v.; sod. salicyl., gr. x.; tr. nuc. vom., ℥ v.; aq. chlorof. ad ℥ss.

To relieve pain aspirin, pyramidon, codein, heroin, and morphia are all employed according to the severity of the pain. A useful prescription is: pulv. empirin, gr. viii.; phenacetin, gr. v.; sp. chlorof., ℥ iii.; syr. zingib. ℥ xv.; mucil q.s.; aq. ad ℥ss.; or as a capsule containing caffein 2 gr., aspirin, pyramidon, and phenacetin, 4 gr. of each.

To aid sleep one may use barbitone, adalin, medinal, allonal, &c. The pain is generally worse at night and the time of its incidence will control, to a certain extent, the choice of hypnotic. A good plan is to give the analgesic half an hour before the hypnotic, and if the pain comes early in the night use bromural, medinal, or adalin, which act quickly. Trional is slowly absorbed, and is most useful when the pain is worst in the early hours of the morning.

Surgical.—Acupuncture of the nerve sheath is said to be of use during an attack to disperse the exudate, but I have no personal experience of its use. When the chronic stage is reached open operation may be necessary to free the adhesions left as a result of the inflammatory process. The best results are obtained in those cases where pain is not complained of while the patient is at rest, but is acute on movement, or on placing the limb in certain positions. If the adhesions are slight, simple stretching of the nerve may be sufficient.

Radiation.—Exposure to X rays or ultra-violet rays have proved of use in some cases.

Special treatment.—This is directed to the removal of any cause, and the time of its application will depend on the nature of the trouble and the state of the patient. As a general rule, the sooner any focus is dealt with the better. If spinal arthritis is present splinting of the lower spine and pelvis is advocated about the third day. A plaster jacket is used for the first two to three months and, later, a celluloid or similar corset. In some of these cases laminectomy to enlarge the intervertebral foramina has been successful.

GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

AT a recent meeting of the Executive Committee official notification was received of the reappointment of the following members of the Council: Dr. John Yule Mackay (as representative of the University of St. Andrews for five years from Jan. 7th, 1927); Sir Arthur Chance, F.R.C.S.I. (as representative of the Royal College of Surgeons in Ireland for one year from Jan. 31st, 1927); and Mr. Herbert Lightfoot Eason, M.S. (as representative of the University of London for one year from Feb. 24th, 1927).

Restorations to the Register under Section 14.

The following names, erased owing to failure to reply to the Registrar's inquiry, were restored to the Medical Register:—

Theodore Bloomenthal, Frank G. Cory, Jesudason S. David, Alfred L. V. Davin, G. M. Earle, G. W. B. Featherstone, Thomas W. George, M. Grundy, H. Hardwick-Smith, E. B. Jones, B. W. R. Divarka Kamalakar, Clayton A. Lane, E. E. McCulloch, Lancelot G. McCune, M. McGann, James J. McKee, Herbert W. G. McLeod, R. M. McQueen, Ernest Martyn, Wm. Miller, Lionel C. F. Murphy, Albert C. Nixon, John Spencer-Daniel, William H. Stott, M. E. Thomson, and J. F. W. Waters.

Instruction in Midwifery at Calcutta.

It will be remembered that in 1924 the University of Calcutta failed to satisfy the Council as to the adequacy of instruction given in its two medical colleges, and that in consequence recognition of the medical degrees of Calcutta University ceased on Nov. 30th of that year. A letter from the Vice-Chancellor of the University, dated Jan. 27th, 1927, now reported that the University had adopted all the suggestions for the improvement in instruction and standard of examination made by the Council in 1924, that these had been embodied in the Regulations, and would come into operation from 1927 onwards. The Council minuted its pleasure at the receipt of this information and deferred further consideration until May, when Sir Norman Walker and Colonel Needham would be able to report personally.

Practice in Mauritius.

A communication was received from the Colonial Office transmitting a proposed Bill to regulate the practice of medicine and surgery in Mauritius. This Bill makes it unlawful for other than duly registered medical practitioners to practise medicine, surgery,

or any branch thereof in the Colony; it provides for the registration of any person who holds a diploma entitling to registration in the United Kingdom, or a diploma of Doctor in Medicine of the Faculties of Paris, Montpellier, Bordeaux, Lyons, and Lille; provides for the erasure of a person convicted of an offence which, if committed in the Colony, would be a felony or misdemeanour, or guilty of infamous or disgraceful conduct in a professional respect; permits qualified midwives, dentists, or veterinary surgeons to exercise their respective professions. The Executive Committee expressed gratification that Mauritius is taking steps to prevent the practice of medicine by unqualified persons, and informed the Colonial Office (in response to an inquiry) that the L.M.S diplomas of the State Medical Colleges in India are not recognised as entitling their holders to registration in this country.

Reciprocity with North-West Territories, Canada.

A communication was read from the Director of the Department of the Interior, Ottawa, transmitting the Medical Profession Ordinance, 1898, together with two Amending Ordinances of 1903. Section 29 of the Ordinance provides for the registration of persons holding diplomas obtained in Great Britain, subject to passing an examination. In 1919 the Council extended reciprocity to members of the C.P. & S. of the N.W.T., and the C.P. & S. of Saskatchewan undertook to issue duplicate certificates of registration to such members as obtained the licence of the N.W.T. after examination. Now that reciprocity with Saskatchewan has been rescinded, this arrangement is deemed to have ceased.

Professional Practice in the Sudan.

A communication was read from the Director of the Sudan Medical Service, transmitting the Public Health Ordinance, 1924. This Ordinance provides that no person shall exercise the profession or calling of physician, surgeon, dentist, pharmacist, druggist, or veterinary surgeon except by virtue of a licence granted by the Director of the Medical Department on the recommendation of the Central Sanitary Board in the case of a physician, surgeon, dentist, pharmacist, or druggist and by the Director of the Veterinary Department on the like recommendation in the case of a veterinary surgeon. Exception is made for any qualified professional man employed by the Government or in the British or Egyptian Army. Any person contravening is liable to a fine not exceeding £E.50, or to imprisonment for a period not exceeding six months. Section 73 provides a fine not exceeding £E.10, or imprisonment not exceeding three months, for any person other than a physician or surgeon licensed under the Ordinance who prescribes, treats or professes to cure venereal disease, or advertises for sale any remedy which is represented as a cure for such disease.

Dangerous Drugs Regulations.

A communication from the Home Office was read, stating that the Under Secretary of State had appointed Sir Humphry Rolleston to be Chairman of the Medical Tribunal for England, and Dr. A. W. Mackintosh to be a member of the Tribunal for Scotland, with Dr. Wardrop Griffith and Dr. Wild substitutes for England, and Dr. Adams substitute for Scotland. Sir Robert Philip had been appointed Chairman of the Tribunal for Scotland; and Mr. E. W. Hansell, M.A., and Mr. John Cowan, K.C., had been appointed Legal Assessor to the English and to the Scottish Tribunal respectively.

British Institute of Radiology.

The Committee approved of No. 12 of the Articles of Association submitted for comment by the Board of Trade, to the effect that no member or associate of the Institute who is not a registered medical or dental practitioner shall accept patients for medical diagnosis or treatment except under the personal supervision of a registered practitioner. The Committee suggested to the Board that Section 3 (*c*) of the Memorandum of Association, which provides for granting diplomas and certificates of merit and efficiency, should be amended by the addition of the words: "and that the holder of such diploma or certificate is not thereby entitled to undertake the medical diagnosis or treatment of patients except under the personal supervision of a registered practitioner."

Midwives and Drugs.

Sir George Newman, who had undertaken to ascertain what drugs and solutions were referred to in the Rules of the Central Midwives Board (No. C 5 *q*) on which instruction was to be given, and whether any directions were given as to what drugs the midwife might or might not use in her practice, had forwarded the following resolution adopted by the Central Midwives Board at its meeting on Jan. 6th, 1927:—

"That a midwife is expected to possess competent knowledge of the drugs and solutions used in obstetrics. This instruction is part of her education by the approved teachers. The Board has never scheduled drugs which may or may not be used by midwives, having regard to the differences of opinion held by recognised authorities. The midwife is obliged by Rule E 19 to 'note in her Register of Cases each occasion on which she is under the necessity of administering or applying in any way any drug other than a simple aperient, the name and dose of the drug and the time and cause of its administration or application,' and is answerable [to the Board] for the improper use of any drug."

The Committee resolved that it is expedient that the rules of the Central Midwives Board should include provisions restricting the drugs and solutions to be used by midwives in their practice: and decided to forward a copy of this resolution to the Ministry of Health and the equivalent authorities in Scotland and Northern Ireland.

Amendment of Warning Notice No. 7.

In view of the provisions of the Midwives and Maternity Homes Act of 1926, the Executive Committee decided to recommend amendment of the Warning Notice relating to Association with Uncertified Persons practising as Midwives, by inserting the italicised words:—

"Whereas it has been made to appear to the Council that certain registered medical practitioners have from time to time, by their countenance or assistance or by issuing certificates, notifications, or other documents of a kindred character, knowingly enabled uncertified persons, on pretence that such persons were under their direction *and personal supervision*, to attend women in childbirth, contrary to law: and whereas such conduct is in the opinion of the Council discreditable to the profession of medicine, and calculated to defeat the purpose of the Statutes made in the public interest for the protection of mothers and infants; notice is hereby given that any registered practitioner who is proved to have so offended will be liable to have his name erased from the Medical Register."

LEEDS GENERAL INFIRMARY.—The annual meeting was held on March 30th. The report presented makes clear the urgent need for an increase in the voluntary hospital accommodation in Leeds. The infirmary at present provides 531 beds and cots, supplemented by 68 beds and cots at the Robert Arthington and Ida semi-convalescent hospitals. These two hospitals are not ordinary convalescent hospitals but really extensions of the infirmary to which patients, especially surgical ones who require a continuance of hospital treatment, can be transferred. The list of patients waiting for admission to the infirmary is very large, and the increase in the patients in the extern departments, whose numbers are not limited by the number of beds, emphasises the necessity for more accommodation. An effort will shortly be made to add two new three-storied blocks, each with about 100 beds, within the grounds of the infirmary. It is suggested that one at least of these blocks should be allocated to paying patients. The dental school and hospital are now in close connexion with the infirmary. When the dental school outgrew the accommodation provided for it at the Leeds public dispensary, the infirmary was able to place at its disposal the large out-patient hall which had been replaced by a new department. This hall forms an admirable temporary accommodation. Some time ago the building of a properly equipped dental hospital was started by the combined efforts of the infirmary, which has provided the site, of the University, which has met some of the cost, and of the Dental Board and the local dental profession.

THE LISTER EXHIBITION.

RECEPTION AT THE WELLCOME MUSEUM.

ON April 7th some 400 people attended an evening reception at the Wellcome Historical Medical Museum, Wigmore-street, London. Addresses on the Lister Centenary were delivered by Sir William Watson Cheyne and others, and an excellent exhibition of Lister relics was on view. The Austrian Ambassador and the Argentine Minister were amongst the guests, and the medical profession in London was fully represented. Amongst the many present who personally knew Lord Lister was Mr. Henry Jones, whose age is 87, and who was butler both to Lord Lister and to his father before him over a period of 50 years. The guests were received by Sir W. Watson Cheyne, supported by Sir StClair Thomson and Prof. Archibald Young, and assisted by Dr. C. M. Wenyon, Director in Chief of the Wellcome Bureau of Scientific Research, Dr. S. H. Daukes, Director of the Museum of the Bureau, and Mr. L. W. G. Malcolm, Conservator of the Wellcome Historical Medical Museum.

In the absence of Mr. H. S. Wellcome, Sir W. WATSON CHEYNE presided. It was a pity, he said, that when Lister came to London he had not found the appreciative atmosphere of the past few days; in such an atmosphere his work would have gone much further. It was, perhaps, surprising that during the centenary celebrations no allusion had been made to Lady Lister, for it was difficult for those closely associated with Lord Lister and his wife to think of one without the other. She was his only secretary, and they discussed his views on an almost equal footing. For hours, day and night, she would sit waiting to take down anything that occurred to him and noting his observations.

At the time when Lister began to work, continued Sir W. Watson Cheyne, practically no one else was doing anything except a repetition of Pasteur's experiments, and Lister also repeated these experiments. He found that insufficient attention was paid to sterilisation of the vessels in which experiments were performed, and he himself constructed the hot box for sterilising the flasks, which was superior to any method hitherto in use. After demonstrating the results obtained by Lister in his bacteriological experiments, Sir W. Watson Cheyne concluded by saying that this official Centenary Exhibition served to emphasise one of the vital purposes of the Wellcome Historical Medical Museum—namely, to demonstrate and visualise to research workers, students, and others the achievements and methods of workers in medicine, surgery, and the allied sciences. It was remarkable in its interest and in its completeness. Mr. Wellcome regarded the Museum as in its infancy, and destined it to be an institution of a vigorously progressive nature, permanently located in London, for London was the medical centre of the English-speaking world and also the appropriate location of Sir William Osler's projected post-graduate institution and fellowship of medicine.

Prof. ARCHIBALD YOUNG described his share in the centenary as partly due to his occupancy of the Regius Chair of Surgery in the University of Glasgow, which from 1860–1869 was occupied by Lord Lister, and partly to the regrettable absence of Sir Hector Clare Cameron, who felt himself unable to face the journey to London and had asked him to come instead.

Beaconsfield had somewhere said, continued Prof. Young, that "one of the greatest legacies of any nation is the memory of a great name, and the inheritance of a great example." This was equally true of a seat of learning. The University of Glasgow had a long and glorious record; the traditions of well-nigh 400 years clustered around the names of men who had done much to advance its efficiency and repute. In the long and distinguished roll, however, no name outshone that of Lister, whose tradition rendered illustrious for all time its Regius Chair of Surgery. The story of the birth of the antiseptic system had been often told, and would be told through the ages. It was true that others before Lister had had some inklings of the truth. Semmelweis, in 1847, had traced puerperal fever to infection; Lemaire, in 1863, in a treatise on carbolic acid, had advocated its use for the destruction of germs in wounds, whilst Bottini, in 1866, had urged that carbolic acid should be employed in the treatment of suppuration. But it was none the less true that it was Lister that finally solved the riddle of wound infection and its prevention; it was Lister who was able to work out fully the whole problem. There was no need to tell the story again. Was it not told in the best of all ways in this great historical exhibition? Illustration was always worth much more than speech in elucidating a problem or in impressing a truth, and here was a wealth of illustration. Changing the simile, it might be said that the promoters of this Museum had constructed in miniature a picture of the great life-work of the Master; a picture in which, with judicious selection yet with sufficient generosity of emphasis, were portrayed the successive steps by which was built up the mature doctrine of antiseptic surgery it was to-day.

Prof. Young then went on to speak of the revolution in surgery at Glasgow which Lister's work had brought about. The idea that, by improved ventilation and such means, it was possible to banish the dire hospital diseases which were now known to be due to infection by pyogenic germs had not been easily eradicated. When Lister left Glasgow for Edinburgh he published a paper dealing with the Effects of the Antiseptic System of Treatment upon the Salubrity of a Surgical Hospital,[1] in which he declared that the antiseptic treatment had transformed the wards under his care in the Glasgow Royal Infirmary from among the most unhealthy in the country into "models of healthiness." Voicing the opinions of the managers of the infirmary, the irate Secretary wrote [2] to point out that the improved healthiness of the wards was to be ascribed mainly to "better ventilation, improved dietary, and the excellent nursing to which the Directors have given so much attention of late years."

In the earlier years, after Lister began to promulgate his new theories in practice, he had met with apathy and even hostility in Glasgow, as well as in Edinburgh and London, for the promulgator of any new doctrine was generally received coldly—and was liable to be misjudged, maligned, opposed and even at times painfully misrepresented. This traditional fate Lister did not escape.

But though he might be grieved by the opposition he encountered, he had not been dismayed. Always he was his own most severe critic, and a piece of reasoning, if it had passed the bar of his own scrupulous and searching criticism, was hardly open any longer to effective attack. Moreover, though he encountered in Glasgow, Edinburgh, and London the chilling effects of apathy and indifference, yet in the two former places at least he was supported with uniform enthusiasm by large classes of students, and was served always by loyal dressers and assistants, who, like Sir Hector Cameron, believed in him and in his message with their whole hearts, and promoted its practice to the utmost. On appointment to the Regius Chair of Surgery at Glasgow in 1860 Lister found himself without any direct hospital connexion. To secure clinical material for his teaching he had to await a vacancy on the staff, and even then to take his chance of election in competition with other applicants. At the first attempt he was unsuccessful. Then a thing happened which the students of surgery in Glasgow to-day were glad to recall. In Lister's first session after appointment he lectured to a class of 182 students, and at the close of the session the

[1] THE LANCET, 1870, i., 4 et seq.
[2] Ibid., 1870, i., 175.

class took the altogether unusual course of presenting him with an address, expressing their appreciation of his teaching and expressing their hope that "for the sake both of the rising profession and of the Institution itself" his application for the next vacancy on the staff of the Royal Infirmary would be successful. This address was meant to be a testimonial in support of his application and was signed by 161 members of his class. It was preserved amongst the exhibits, and Prof. Young had been glad to find among the signatures those of an uncle of his wife, and of an uncle of his own—William Loch Stuart and John Young.

Sir STCLAIR THOMSON remarked that "after these days of praise and adulation, fellows of the baser sort will be thinking that it is time we began to hear of some of Lister's defects." The defects of the great were the consolation of mean men. The curious thing was that people did not feel mean in Lister's presence. His was an outstanding example of how, by treating all his opponents with courtesy and patience, he appeared to elicit from them, however narrow-minded and bigoted, some of the same patience, toleration and hunger for truth. Only by cudgelling his brains was he able to think of Lister's defects, and he could only remember two or three very trivial ones. He had no sense of time; he was apt to be late for appointments, and he was still working at and polishing up his address when the carriage was at the door waiting to take him to the lecture hall. Another defect was that "he joked with deefeeculty." He was also what would be called in these days of the æsthetes, "very utter and and intense." He had no absorbing hobbies, like golf or bridge, although it was known that he skated, fished, was devoted to walking and excursions, was fond of botany and bird life, and could be as happy as a boy when on a holiday. But at an evening party no fish out of water ever looked more unhappy and miserable. He was wise in that with him, "true companionship came from sharing in work." He was exceedingly hospitable without ostentation to all who worked under him, visited his clinic, or shared in any of his labours. The happy circumstances that he had had a sufficient fortune had not turned him to idleness, but helped to explain why he was not a success as a consulting physician in London. He would decline to name a fee, or else suggest such a modest one that he put the family practitioner in an embarrassing position.

Sir StClair Thomson went on to speak of the exhibition. It demonstrated that this genius could be methodical, orderly, cautious, and far-sighted even to the verge of pernicketiness. All these wonderful souvenirs would be a source of inspiration for future workers in science and surgery. The man who looked forward was apt to see only one road to advance. The man who also looked backward could see two or more possible avenues for advance. The generosity and wide view and the unselfishness of Mr. Wellcome had opened up both roads. Sir StClair Thomson wished that he were there so that heartfelt thanks might be tendered for his generous hospitality, and so that he might be assured of their deep appreciation of his great work.

A vote of thanks to Sir W. Watson Cheyne, Sir StClair Thomson, and Prof. Young was proposed by Sir JOHN SAMUEL, Honorary Secretary, Glasgow Lister Memorial Committee, who described Lord Lister as a great gentleman and spoke of the consideration with which he had been treated by Lister when he was a young man. Glasgow, in spite of the destruction of the Lister ward, was not forgetful of his work.

The vote was seconded by Dr. PASTEUR VALLERY-RADOT, grandson of Louis Pasteur, who spoke of the interpendence of discoveries and discoverers. Pasteur could not have done his work but for Jenner, and Lister could not have done his without Pasteur. Between these two men there had been great personal affection.

A vote of thanks to Mr. Wellcome was passed with enthusiasm on the motion of Sir STCLAIR THOMSON. The company then proceeded to view the Exhibition itself, which contains a section of the original ward of the old Glasgow Royal Infirmary in which Lister carried out his work. It has in it the furnishing and equipment used in Lister's time, and presents an epitome of the evolution of antiseptic surgery. Very many of the exhibits are the actual materials and appliances with which Lister worked. There is a complete collection of the various types of sprays and dressings he devised, and also an exhibit of his bacteriological apparatus. The insignia of Lord Lister's orders, the freedoms of cities, and the diplomas and other distinctions granted him are also on view as well as a large collection of portraits and letters.

THE LISTER CENTENARY:

THE TESTIMONY OF WILLIAM WILLIAMS KEEN.

THE ninetieth birthday of Prof. William Williams Keen, of Philadelphia (he was born on Jan. 19th, 1837, that is to say, while William IV. was still on the throne), was recently celebrated by a service of congratulation conducted under the auspices of the First Baptist Church of Philadelphia, of which congregation the veteran surgeon had been an active member from childhood. At the close of the addresses conveying the affection and esteem of the congregation Prof. Keen gave a brief and modest outline of his own career, tracing with convinced piety the guidance of God in shaping his aims, their successes, and even their failures. Of Lister's approaching centenary he said, "In 1876 Lister was President of the Surgical Section of the International Congress of Medicine, held in Philadelphia in connection with the Centennial Exhibition. He explained his antiseptic system of surgery so convincingly that I instantly accepted it. I was his first disciple in this city. Each succeeding year has only strengthened my conviction of its enormous value to mankind and to animals in every department of medicine. Hence, compound fracture of the leg, in competent hands, is a 'safe accident' to-day. Any surgeon who now loses more than 3 or 4 per cent. of his cases of ovariotomy must critically examine his methods if he is to maintain his standing among his fellow-surgeons. Before Lister's day *Noli me tangere* was writ large on the head, the chest and the abdomen. We never dared to invade these cavities in my early surgical days unless accident had already opened them. To-day they are the arena of our chief victories. Even the brain and the heart, the very citadels of life, surrender at our summons. The labors of Lister and his followers have changed the Purgatory of my early surgical days when death peered over the shoulder of the surgeon at every operation and was sure of abundant victims, to the Paradise of to-day, when almost every death following an operation is a 'surprise,' which bids us search for any possible error in our technic."

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Small-pox in Dundee.

THE detailed report on the Dundee outbreak of small-pox—up to date there have been some 77 cases [1]—will be an interesting document. It will show how puzzling some recent varieties of small-pox can be, but it will also show how an outbreak can be controlled when it is properly handled. Diagnosis has obviously been difficult, but careful study of the distribution of the eruption, and the results of agglutination and vaccination tests, have made it clear that, although anomalous, the disease is a genuine variety of small-pox. A leading feature is that the majority of the patients are children of or under school age, and that they are unvaccinated. The

[1] Questions and answers in the House of Commons relating to this epidemic of small-pox will be found in our Parliamentary columns.—ED. L.

late Dr. John McVail used to emphasise the fact that, in badly vaccinated areas, small-pox began to appear disproportionately amongst the children under 10, as it did in the very early days of the nineteenth century. When vaccination became practically universal, the disease was rarely to be met with in children under 10 years old. Dundee is repeating the experience now familiar elsewhere. The medical officer of health and his local authority have acted with promptitude and vigour, both in extending hospital space and in securing vaccination. Some 9,000 children have been vaccinated or re-vaccinated.

The Pharmacopœial Preparations of Ergot.

A recent meeting of the Edinburgh Obstetrical Society began with a paper by Prof. A. J. Clark on the question whether the pharmacopœial preparations of ergot contain active principles. The history of ergot epidemics, he said, showed that ergot taken by mouth produced toxic effects, and the frequency of abortion during epidemics of ergotism had probably led to its use in therapeutics. Its outstanding effect in treatment was that, when given by the mouth during labour, it caused increased force and frequency of pains within 20 minutes, the increased action being so powerful as to be dangerous if there was any mechanical obstruction. This was an unusually straightforward and easily recognisable therapeutic action, and though the active principles of ergot were unstable, it was remarkable that there should be any doubt whether any given preparation was active or inactive.

The chemistry of ergot, he said, had long been a puzzle. In 1874, Tanret had isolated the crystalline alkaloid ergotamine. This proved to be inert, but in 1906, Barger and Carr had isolated the alkaloid ergotoxin which produced all the typical pharmacological actions of ergot and was found to be the hydrate of ergotinine. In 1922 Stoll had isolated another specific alkaloid, ergotamine. The pharmacological actions of ergotoxin and ergotamine appeared to be identical. In addition to the specific alkaloids, ergot contained a remarkable medley of breakdown products of proteins. Of these, tyramine and histamine, the amines derived from the amino-acids tyrosine and histidine, had received most attention. These drugs produced remarkable and interesting pharmacological actions when given hypodermically, but had very little action when given by mouth. The quantity of them present in ergot was too small to be of any importance when ergot was given orally. The therapeutic action of ergot therefore depended entirely on the specific alkaloids, of which it contained 0·1 to 0·2 per cent. In 1907, Barger and Dale had pointed out that, since ergotoxin was insoluble in water, the liquid extract of ergot could contain little or none of this active principle. In 1913, Carr and Dale had criticised the pharmacopœial preparations in detail, showing that they were all produced in such a way as to lose nearly all the active principles. These criticisms were not affected by the discovery of the new alkaloid ergotamine, for this had similar solubilities to those of ergotoxin. In 1923, Prof. Clark had himself performed a series of tests on pharmacopœial preparations made from ergot of known activity, and had found that the processes of preparation involved the loss of 97 per cent. of the active principle, except in the case of the ammoniated tincture in which one quarter of the active principle was retained. Most of the foreign pharmacopœias, said Prof. Clark, contained rational methods for making ergot preparations. Curiously enough each revision of the British Pharmacopœia since 1885 had made the British preparations as a whole worse than they were previously. As a new pharmacopœia was likely to be prepared soon, the question was one of obvious practical importance. He found it difficult to understand why obstetricians had accepted, and apparently had used without much complaint for 30 years, preparations of ergot which were found to be inert when judged by pharmacological and chemical tests.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

The Box System for Babies.

THE lives of thousands of French children were saved during the war by the establishment of *chambres d'allaitement* at institutions employing women. The best results were obtained at those which were visited every week by a pædiatrist, and an interesting account of the one which serves the personnel of the Salpêtrière Hospital has recently been given by Prof. Armand-Delille. Here the arrangements permit of the isolation of each baby in a kind of box, where it is breast-fed by the mother every three hours. During the past four years there has not been a single death from digestive troubles among 200 infants accommodated, and in spite of occasional cases of measles, whooping-cough, and diphtheria brought in from outside, there has been no epidemic of these diseases. The box system, if in general use at creches, would reduce infantile mortality to a minimum. At such institutions it is also possible to adopt prophylactic measures against rickets, which is found in about 7 per cent. of children throughout France. At the Salpêtrière *chambre d'allaitement* the babies are given sun-baths as a routine during fine weather. From April to October, whenever there is enough sunlight, they are exposed naked to the rays, their cradles being taken out on a terrace facing south-east. Not one of the 194 children thus treated has developed rickets. Some of them, born in November or December and appearing weakly, had ultra-violet baths during the winter, but those born after the end of January had nothing but ordinary sunshine. This is a useful demonstration of the ease with which a serious disease may be prevented by simple measures.

Treatment of Asthma.

As a treatment for asthma Dr. Paul Cantonnet of Paris recommends daily intramuscular injection of 1 to 3 c.cm. of a fresh 5 per cent. solution of iodised polypeptone, made up in hypertonic (1·5 per cent.) saline. An accessory form of treatment is nasal insufflation of stimulating and astringent powders and intratracheal injections having the same effect on the lower respiratory passages. Dr. Cantonnet claims that in only 28 cases out of 3200 has there been complete failure. Of the remainder, 50 to 75 per cent. were cured in 20 to 25 days, and the rest after from one to four relapses. As a rule the attacks disappeared during the first ten days, generally in the first five.

Benzyl Cinnamic Ether and Pulmonary Tuberculosis.

The use of benzyl cinnamic ether in the treatment of tuberculous epididymo-orchitis has already been described in THE LANCET (1926, ii., 824). Dr. Jacobson of Paris, who devised the method, has reported to the Société Médicale des Hôpitaux on its results in 10 cases of pulmonary tubercle, none of which was suitable for artificial pneumothorax. Over a period of 12 days 0·25 c.cm. of the drug was given to each patient, after which there was an interval of 18 days before treatment recommenced. It is given as an intramuscular injection in an oily suspension and is well tolerated. Of the ten patients, two died some months after administration ceased; in one there was improvement of the general condition without apparent change in the pulmonary lesion; whilst in the remaining seven there was distinct amelioration of the general condition and of the physical signs, together with a significant alteration in the radiographic appearances. Under the influence of the drug the focus of infection in the lung seemed to undergo sclerosis.

Death of Prof. Gilbert.

Prof. Augustin Gilbert, who has died after a short illness, was born in 1858 at Buzancy (Ardennes) and went to school at Rheims. At the age of 18 he came to Paris and took up the study of medicine. He

qualified in 1886, and after a series of hospital appointments was elected first to the chair of therapeutics and later, in 1910, to the chair of clinical medicine of the Hôtel Dieu, where his teaching was much valued both by French students and foreigners. In collaboration with Brouardel he edited a treatise on medicine and therapeutics in ten volumes, as well as the later issues of Littré's dictionary. He also edited, with great skill, the journal *Paris Médical*, which he had founded. Since 1905 Prof. Gilbert had been a member of the Académie de Médecine, and he was a Commander of the Legion of Honour.

An Electrolytic Solution for Sterilising Wounds.

It will be remembered that remarkable results were obtained during the late war by the use of Carrel-Dakin solution for the treatment of infected wounds. Chevrier, of Bordeaux, suggests a method in which for Dakin's solution is substituted a fluid prepared by electrolysis of Ringer-Locke saline. The passage of an electric current through this fluid at a temperature of 37° C. releases two powerful antiseptics, ozone and chlorine, which instantly sterilise (so to speak) the infected tissues. It is hoped that this method may be a means of producing antisepsis without violation of the rigorous laws of physiology.

Tuberculosis and Cancer.

Writing in the *Presse Médicale* recently Arnould points out that there is a tendency to exaggerate the incidence and mortality of cancer. In relation to tuberculosis they appear to have risen, largely because tubercle has been considerably reduced by modern hygienic and sanitary practice. It is very questionable, he says, whether cancer has actually increased, and the economic loss caused by this disease by no means approaches the loss due to tuberculosis, a statement supported by statistics from Holland, Norway, England, France, and other countries. Scarcely one-fifth of the deaths due to cancer occur during the period of full productivity, whereas four-fifths of the mortality from tuberculosis is at ages when the victims should be at work. Tuberculosis thus costs communities twice as much as cancer.

The Botelho Cancer Reaction.

Roussy and Peyre have examined the Botelho diagnostic test of cancer in 83 cases with the following results. With the serum of 52 cancer patients, 42 tests were positive and 10 negative. With that of 21 non-cancerous patients, 6 tests were positive and 15 negative. With 9 samples of serum obtained from patients with inflammatory and glandular affections, the positive tests numbered 5, the negative 4. The experimenters conclude that the test cannot be depended on for the certain diagnosis of cancer.

In the treatment of varicose veins Dr. Humbert recommends the simultaneous use of sclerosing injections (chiefly of sodium salicylate) and adhesive bandaging. The technique is delicate, and much experience and judgment are required. In selecting the substances and concentrations for injection, special attention must be paid to the state of the local lesions, and the character and peculiarities of the veins.

The Third International Congress on Urology will be held at Brussels from August 3rd to 9th. The questions on the agenda include the Physico-therapy of Vesical Tumours and the Treatment of Genital Tuberculosis.

The Fortieth French Ophthalmological Congress will begin on May 9th. The principal subject will be the relation of the sympathetic nervous system to ocular pathology, and especially to intraocular circulation. Information is obtainable from Dr. R. Onfray, 6, Avenue de la Motte-Picquet, Paris.

A congress on arthritis will be held at Vittel at Whitsuntide (June 5th and 6th). Particulars may be had from Mr. Renard, Soc. gén. des Eaux, Vittel, Vosges.

MEDICINE AND THE LAW.

Libel Action by an Escaped Asylum Inmate.

AN escape from a lunatic asylum has sometimes led to legal proceedings, but can seldom have occasioned a claim so remarkable as that of a plaintiff in a libel action tried lately before Mr. Justice Rowlatt and a special jury. The plaintiff's grievance was that a London newspaper had published an article headed "Madman Free in London," in which he was described as a dangerous lunatic who had escaped from an asylum; this publication, he said, was libellous and had prevented him from getting an honest living as a hairdresser. The newspaper's defence was that the article was true in substance and fact and that, in so far as the words were matters of comment, they were published in good faith and without malice on a matter of public interest. The plaintiff, who appeared in person, gave a frank account of his history. He was sentenced in 1919 to five years' penal servitude for shooting at two policemen with intent to do them grievous bodily harm. At the time of the offence he and another man were attempting to commit a burglary at Finchley, and he was armed with a pistol, a jemmy, and a torch. He served part of his sentence at Wandsworth prison, part at Parkhurst, and from May, 1920, to August, 1924, he was confined at the Broadmoor Criminal Lunatic Asylum. On his release he was sent to Napsbury Lunatic Asylum for about 16 months; then his relatives had him removed, he said, to Peckham House. From the latter institution he escaped on Feb. 17th, 1926, and the article of which he complained was published on the following morning. He kept quiet for a fortnight and afterwards tried to get work at his trade as a hairdresser. In one case a hairdresser refused to employ him because he answered the description published in the newspaper. Some of these facts were stated in his evidence in chief, others were admitted in the course of cross-examination, during which he agreed that, while at Broadmoor, he might have been described as "destructive, cunning, and threatening," though he added that not all the inmates at Broadmoor were insane. According to the account of the case in the *Times*, among the witnesses whom he called were the secretary of Peckham House (who said he knew nothing against him as a patient), Dr. Hector Munro (who examined him in March, 1926, and certified that he then seemed quite able to look after himself and his affairs, and that the examination revealed no trace of mental derangement), and three hairdressers who had employed him since his escape and said they found him sane and peaceable. The learned judge told the jury that the plaintiff had evidently been a very dangerous man who had been sentenced for a serious crime and had escaped from an asylum; it was for the jury to say whether the defendant newspaper had done more than it was justified in doing. The jury returned a verdict for the defendants. It is something of a relief to record a case of this kind where there was no charge of negligence against a certifying doctor, and no conflict of medical evidence.

"Holding-out" by Unregistered Dentist.

The stipendiary magistrate at West Ham Police-court imposed last week a fine of £40 upon a prosecution by the Dental Board. The summons, under Section 1 of the Dentists Act of 1921, alleged that the defendant held himself out as practising or being prepared to practise dentistry, in contravention of the Act. Evidence was given that his name was struck off the Dentists' Register on June 1st, 1926, the principal ground being an allegation of advertising. Two witnesses testified that on the defendant's window were the words, "Mr. Wm. Birkett, Dentist," and that on doors leading into the premises was lettering showing "Birkett Dentists, Ltd.," and also "Mr. Wm. Birkett, Dental Practitioner." According to the report of the case in the *Times*, four witnesses called for the defence denied that the words were

exhibited as alleged by the prosecution. The defendant himself stated that, since his name had been erased from the Register, he had not used the description of dentist; he said he had put up "Late Dentist" and also "Dental Prosthetician." Asked the meaning of the latter phrase by the magistrate, he said the word meant a dental mechanic and was a common word in the trade. Mr. Abinger, who appeared for the defendant, said Mr. Birkett was the director of a company carrying on business, and that all its dental work was done by registered and qualified men. It was suggested that the prosecution was inspired by malice and spite on the part of a rival. The magistrate, however, imposed a fine as stated, and said he was convinced that the word "practitioner" had been altered to represent a mechanic. There had been another summons against Mr. Birkett for actually practising dentistry in contravention of the statute, but the prosecution withdrew this summons at the outset of the proceedings, and the magistrate allowed the defendant £10 10*s.* costs in this respect.

The decision in these "holding-out" cases depends upon the facts and the magistrate's view of them. The evidence here was conflicting. It is conceivable that the words which the defendant stated he had himself used might be proper and harmless in certain circumstances, and that they would raise an inference of "holding-out" in other circumstances. Presumably the evidence of the witnesses for the prosecution was accepted.

"*Heather Honey.*"

Upon a summons recently taken out by the Ministry of Agriculture, the West London Police-court magistrate has held that the label "Heather Honey" is not a mere generic trade description, but that it implies that what is offered for sale does contain heather pollen. A company which was responsible for the selling of a jar of honey labelled "Heather Honey," which on analysis was found to contain no trace of heather pollen, was fined £20. The defendants argued that the label was merely descriptive of the type, heavier honey being classified in the category of heather honey, and the higher and finer honey being put in the category of clover honey. They argued that the label was not a guarantee that the bees had visited heather, and they pointed out that obviously there could not be any great stock of actual heather-flavoured honey on the market. The magistrate said the prosecution had proved its case. He was satisfied that there was such a thing as heather honey—i.e., honey substantially made from the heather bloom. The label implied that the honey did contain heather pollen. The decision is of importance to retailers.

WESTMINSTER OPHTHALMIC HOSPITAL.—On April 6th a reception was held at the Westminster City Hall in the interest of the rebuilding fund of Westminster Hospital. The Mayor of Westminster, Councillor S. P. B. Bucknill, who received the guests, opened the proceedings with an address in which he explained that the hospital was founded over a century ago by an army surgeon, Mr. G. J. Guthrie, at his own house on the site of the present Berkeley Hotel. The hospital was subsequently removed to Marylebone-street and afterwards to Warwick-street, Golden-square, and in 1832 the present hospital in King William-street, Strand, was erected. Lord Desart, chairman of the rebuilding fund, said that the work of the hospital had so increased that it was necessary to seek larger premises. The freehold of the site and buildings in King William-street had been realised and a new hospital would be built in Broad-street, Shaftesbury-avenue, where it would be possible to train more students and more nurses and where the poor would be treated along with the more well-to-do and especially the children of all classes, the preservation of whose eyesight was a matter of deep national concern. In order that the new hospital might start free of debt a sum of £60,000 was required immediately. Mr. Bernhard Baron had given £10,000 and other sums had been received from generous donors. The architect, Mr. Percy Adams, F.R.I.B.A., then presented the plans of the new hospital, after which Mr. W. H. McMullen explained how modern eye surgery was carried out at the hospital. Sir Richard Cruise subsequently demonstrated some of the scientific apparatus used there.

Correspondence.

"Audi alteram partem."

TESTS FOR DRUNKENNESS

To the Editor of THE LANCET.

SIR,—I am happy to be able to assure Dr. Southgate that some of the senior police medical officers are far from being satisfied with the present tests for drunkenness, and that the great scientific value and possible practical importance of his work and that of Dr. Carter is recognised by them. He will be glad to hear that active investigations are at present being made with a view to a corroboration of their observations.—I am, Sir, yours faithfully,

London, W., April 8th, 1927. MAURICE A. CASSIDY.

SPLENECTOMY IN MALARIAL SUBJECTS.

To the Editor of THE LANCET.

SIR,—With reference to Dr. J. MacQueen's interesting account of his successful treatment of an enlarged and ruptured malarial spleen, published in your issue of Feb. 26th, in which he invites the experience of others, the following brief summary of the last ten splenectomies performed at the Altounyan Hospital may be of interest.

1. Male, aged 25, malarial splenomegaly. 1/5/24: Splenectomy. Diaphragmatic adhesions. 2/5/24: Profound shock. Blood transfusion. Death.

2. Female, aged 40. Malarial splenomegaly. 23/6/24: Blood transfusion. 1/7/24: Splenectomy. Slight shock. Blood transfusion. 13/7/24: Discharged convalescent.

3. Female, aged 40, malarial splenomegaly. 3/7/24: Splenectomy. Spleen weighed 9 lb. No shock. Blood transfusion. Discharged convalescent ten days later.

4. Male, aged 18, malarial splenomegaly. 20/11/24: Splenectomy. Blood transfusion. No shock. Discharged convalescent 15 days later.

5. Male, aged 20. Splenic anæmia. 24/1/25: Splenectomy. Blood transfusion. No shock. 6/2/25: Death from exhaustion.

6. Female, aged 30, malarial splenomegaly. 28/3/25: Splenectomy. Blood transfusion. No shock. 27/4/25: Discharged convalescent.

7. Male, aged 30, malarial splenomegaly. 2/6/25: Splenectomy. Blood transfusion. No shock. 4/6/25: Death. Cause unknown.

8. Female, aged 15, malarial splenomegaly. 13/5/26: Splenectomy. Blood transfusion. Slight shock. 26/5/26: Discharged convalescent.

9. Female, aged 35, splenomegaly. Ascites. Cirrhosis of liver. 6/11/26: Splenectomy. Many adhesions which caused profuse hæmorrhage. Blood transfusion on the table. Death one hour later.

10. Female, aged 20, torsion of the spleen simulating an ovarian cyst. 22/12/26: Splenectomy. Malarial spleen weighed 4 lb. Blood transfusion. No shock. 3/1/27: Discharged convalescent.

I should say that, provided there are no extensive diaphragmatic adhesions, the removal of the malarial spleen need not carry a higher mortality than excision in other diseases. Here we are frequently forced to abandon all attempts at splenectomy owing to formidable adhesions. Case 9 shows the danger even of exploring such cases. Bleeding from adhesions was started by the exploring fingers and could not be arrested until the spleen had been removed; the pedicle was too short to clamp before delivery of the spleen. As to the late effects we have as yet no evidence that the procedure is of lasting benefit to the malarial patient.

With regard to the rupture of the diaphragm reported by Dr. MacQueen, I suggest that it is difficult to diagnose this condition without actually seeing the lesion. I have been more than once misled by the innocent sucking in of air into the subdiaphragmatic pouch.

I am, Sir, yours faithfully,

E. H. R. ALTOUNYAN, M.D. Camb.

The Altounyan Hospital, Aleppo, Syria.

PHLEBITIS AND THROMBOPHLEBITIS.

To the Editor of THE LANCET.

SIR,—Dr. W. Bain's article has once again drawn attention to the prevalence of venous thrombosis following intoxications and infections, and my excuse for entering upon a discussion on the subject is because my research work throws light both upon the cause and the treatment. In all intoxications and infections some of the protein particles in the plasma increase in size, or undergo what I term "hydration," to avoid being sent into true solution. Once the cause of the dehydration and the consequent hydration has been removed the hydrated particles undergo the cyclical change of dispersion. Should the division and subdivision of the protein particles result in an enormous number being formed, the dispersed phase takes the place of the dispersion medium (the liquid portion of the plasma) and vice versa to form a gel. The gelation of the protein particles occurs where the circulation is most sluggish—viz., in the veins—to cause what is known as "thrombosis." Although gelation occurs frequently in the veins of the lower extremities, it is particularly apt to occur in the lungs. Pulmonary gelation when very marked occurs in the pulmonary artery which functions as a vein, to cause what is erroneously known as "pulmonary embolism." When the gelation is less marked pulmonary œdema is produced, a condition which is usually wrongly named "pneumonia." Pulmonary embolus is wrongly named because the thrombus is formed *in situ*. Venous thrombosis may occur in more than one vein at a time and the lesion may spread by direct extension, but rarely, if ever, does a portion of the thrombus become dislodged to settle elsewhere. Therefore, the long-continued rest generally advised is not necessary, indeed it is actually harmful. Another point in this connexion is the fact that early movement, once the intoxicant or infective agent has ceased its activity, would prevent gelation from occurring. Pulmonary thrombosis should not be called pneumonia because it is due to a chemico-physical change the protein particles in the plasma undergo and is independent of micro-organisms. This rules out of court the idea that the type of venous thrombosis referred to is a septic process.

Protein gelation gives a typical blood-picture. The serum is very clear, the suspension stability of the red blood corpuscles is reduced, the refractive index of the serum is lowered, the viscosity of the blood is raised, the coagulation time is shortened, the blood is particularly dark, the percentage of one or more of the adsorbed protein constituents is raised (sugar, urea, calcium, &c.), and the serum viewed with a dark-ground condenser shows very few particles moving and a carpet of precipitated particles, with or without an extensive fibrin network.

Protein gelation differs from intravascular clotting produced by conductors, of which para-thor-mone is a good example, in many respects. Intravascular clotting takes place in the arteries, the blood is bright red, the suspension stability of the red blood corpuscles is not reduced, the refractive index of the serum is not lowered, and the serum examined with a dark-ground condenser reveals myriads of particles with active Brownian movements. Protein gelation is characterised by the great loss of electricity sustained by the protein particles, hence the reason why the particles coalesce to form a thrombus. Therefore the rational treatment is to supply electrons to the particles and the moment their negative charge is increased the agglutinations break up and the particles are restored once more to the circulation. When fever is present I prescribe Sup 36 in 0·01 g. doses and when there is no fever, Sum 468 in 0·002 g. doses. Sup 36 should be injected intramuscularly on two successive days and again on the fifth day. Sum 468 should be injected intramuscularly every day or every other day until the thrombus has vanished. I have treated many cases in this way with uniform success and ha had all the patients walking about in less than a fortnight.

The phenomenon of clotting is fully described in "The Nature of Disease," (Vol. I., Chapter XIV.), so I need say no more here than that clotting is not a ferment action, that there are no such substances as prothrombin and thrombin, that clotting can occur independently of blood-platelets, and that calcium has no specific rôle.—I am, Sir, yours faithfully,

J. E. R. MCDONAGH.

Wimpole-street, W.1, April 2nd, 1927.

ANTERIOR SUBLUXATION OF THE ATLAS.

To the Editor of THE LANCET.

SIR,—While congratulating Prof. Oppel on the brilliance of his technique which enabled him to remove successfully part of the anterior arch of the atlas, may we at the same time draw attention to what appears to be a misconception of the mechanism of the occipito-atlanto-axial articulation. In discussing the plan of the operation (THE LANCET, April 2nd, p. 700), he says:—

> . . . . the crux of the intended operation would consist in taking measures to avert the possibility of an ensuing compression of the medulla. It thus becomes evident that to gain that purpose the anterior arch of the atlas should be removed. This measure alone would permit the detached dens to move forward with the subsequent slipping forward of the atlas.

Surely, in the event of the transverse ligament giving way, absence of the anterior arch of the atlas would not prevent compression of the medulla between the posterior arch and the odontoid process. Would not such a calamity be more effectively and more easily avoided by a laminectomy of the atlas? It appears to us that, judging from the result, the operation was desirable from the point of view of improving the function of these joints, but we fail to understand how the absence of the anterior arch could avert the possibility of medullary compression, and would suggest that this depended entirely upon the fact that the transverse part of the cruciform ligament remained intact.

We are, Sir, yours faithfully,

S. ALWYN SMITH, F.R.C.S.
LAMBERT ROGERS, F.R.C.S.

Surgical Unit, Welsh National School of Medicine, the Royal Infirmary, Cardiff, April 5th, 1927.

VENEREAL DISEASE IN THE MEDICAL CURRICULUM.

To the Editor of THE LANCET.

SIR,—In the report of my remarks at the recent meeting of the Medical Society for the Study of Venereal Diseases (THE LANCET, April 2nd, p. 707) my main contention was omitted. This was that the student should attend the surgical out-patient department from even the very beginning of his studentship, if only for an hour a day. Under an inspiring and judicious instructor (mine was the well-known Joseph Bell), much lasting clinical knowledge can be acquired long before the full details of anatomy, physiology, and pathology are mastered. This is particularly true with regard to the external manifestations of such a disease as syphilis. Even though the thorough treatment may be best taught in a special department, its external aspects should be studied in the surgical out-patient department where they can be compared with the various other conditions from which they have to be distinguished. An early acquaintance with the features and possibilities of this disease is important for all who may, as dressers (or nurses) have to handle lesions which are possibly "specific."

I am, Sir, yours faithfully,

London, April 10th, 1927. JAMES DUNDAS-GRANT

"THE LONDON CLINIC."

To the Editor of THE LANCET.

SIR,—In view of certain publicity which has recently been given to the London Clinic (founded and maintained by the British Humane Association), we, the undersigned, wish it to be known that we have severed our connexion with that body.

We are, Sir, yours faithfully,

DAWSON OF PENN
THOMAS HORDER } Advisory Committee.
L. D. BAILEY, REGINALD C. JEWESBURY,
J. F. CARTER BRAINE, G. MURRAY LEVICK (Hon. Medical Director),
E. P. CUMBERBATCH, STANLEY MELVILLE,
S. L. HIGGS, C. A. ROBINSON.
D. V. HUBBLE (R.M.O.),

April 8th, 1927.

INFLUENZA: A PERSONAL STORY.

To the Editor of THE LANCET.

SIR,—During a recent attack of pure influenza I reflected upon the field of action of the germs, or of their conflict with phagocytes. The influenza was "pure" inasmuch as none of the germs which are usually loafing about the throat took part in the frolic. After breakfast I had done my chores in the garden (my gardener is free on Sunday), and returned to the house without an inkling of impending trouble. There was absolutely no symptoms; yet unwonted disinclination to starting for church aroused suspicion. Temperature 100·6° F. Later in the day the raised temperature caused the epithelium of the throat the secrete clean white mucus, which provoked a cough. For three days I put nothing into my stomach but water and carbonate of soda, this in my personal experience being the only means of avoiding the misery of flatulent distension which results from taking food when the digestive secretions are in abeyance, and a high temperature favours fermentation. It was clear that the skin, muscles, and interstitial lymphatic tissue were not affected. During this period and the succeeding two days the clear urine was the colour of dark brown sherry. Destruction of blood pigment was going on. The liver was certainly within the field of operations. No food and a motion every day had emptied the lower bowel before, on the fifth morning, I passed a very large quantity of black inspissated bile, which had collected in the sacculi of the colon. The hæmolytic capacity of the germ may possibly afford a clue to its identity. Until I discovered that I was feverish I was head to head with members of my family; but they escaped. This seems to show that in the earliest stage of influenza germs do not escape into the breath.

I am, Sir, yours faithfully,

April 7th, 1927. ALEX HILL.

GLYCOSURIA COMPLICATED BY GALL-STONES

To the Editor of THE LANCET.

SIR,—In connexion with the case described by Dr. Shapland in your last issue, may I point out that, in my experience, an abnormally low threshold for glucose is not uncommon in diabetes. The systematic chemical analysis of the whole blood made in all my cases has shown that, as a rule, this lowering of the threshold is associated with a subnormal percentage of calcium upon which it appears to depend, for the threshold rises if the percentage of calcium increases. Partial exhaustion of the parathyroids as a result of chronic toxæmia appears to be the most common cause, but, since disturbances of calcium metabolism occur in connexion with inflammatory affections of the pancreas, as I believe I was the first to point out in 1904, it may also arise as a consequence of chronic pancreatitis. The latter may be the explanation of the low threshold in Dr. Shapland's case.

It has long been recognised that glycosuria is a relatively uncommon result of the chronic interstitial pancreatitis associated with gall-stones and that when it occurs it is of a mild type. But the disease is usually progressive and, although operative interference may bring about an improvement in the patient's carbohydrate tolerance, it is often only temporary and frank diabetes ultimately develops. I have several patients in whom this series of events, spread over as long as ten years in one instance, has taken place and they are now being kept alive only by the use of considerable doses of insulin. While, therefore, I agree with Dr. Shapland that removal of the diseased gall-bladder in his case was probably the deciding factor in the alleviation of the diabetic condition, I should be doubtful whether the recovery will be permanent.

I am, Sir, yours faithfully,

P. J. CAMMIDGE.

Nottingham-place, W., April 9th, 1927.

THE GLUT IN WOMEN DOCTORS.

To the Editor of THE LANCET.

SIR,—The glut in women doctors still continues. A single advertisement inserted in a London weekly medical journal produced 48 applicants for two posts—viz., those of senior and junior resident medical officers to a children's hospital in the North of England, the salaries being £120 and £100. Recently a like advertisement brought forth only 12 male candidates for the post of house physician at our general hospital.

None of the former applicants gave her age as over 29. Thirty-eight of the candidates had held previous hospital appointments lasting from 2 to 50 months. Many had gone from post to post. All the applicants were University graduates except one, who held the diploma of the London Conjoint College and she is a R.M.O., in a homœopathic hospital. Twenty-three had English qualifications, 21 Scottish, and 4 Irish (one from north Ireland and 3 from the Free State). The 23 English women had degress from Oxford 1, Durham 4, London 10 (University 9, Conjoint Colleges 1), Birmingham 1, Liverpool 3, and Manchester 4. The 21 Scottish graduates were 3 from St. Andrews, 6 from Edinburgh, 8 from Glasgow, and 4 from Aberdeen. The Irish graduates were 1 from Belfast and 3 from Dublin. The large number of Scottish applicants were out of proportion to the numbers qualifying across the border. Of over 2000 new names added to the Medical Register last year from Great Britain, two-thirds were from England and one-third from Scotland, although Scotland has only one-seventh the population of England. The Oxford graduate was appointed senior and a Durham graduate, who had local influence, junior medical officer.

With regard to the excessive number of graduates (men and women) entering the profession in the face of a fallen and still falling sickness rate—the Medical Register already contains over 53,000 names—it is said that out of every three qualifying in Ireland two must emigrate, and the proportion must be higher from Scotland. The celebrated Abernethy at the first meeting of his annual class of medical students used to exclaim, "Good God, gentlemen, what will become of you all?" So we may say to-day. Some of the best American Universities (Pennsylvania, Baltimore, &c.), restrict their medical students to a fixed number, which can be adequately taught the practical side of their work, some of them admitting less than a quarter of the applicants and selecting only the best after inquiry and examination.

I am, Sir, yours faithfully,

Sunderla[illegible] April 7th, 1927. WM. ROBINSON.

Obituary.

JOHN ERNEST HODDER-WILLIAMS, C.V.O.,

CHAIRMAN OF THE LANCET.

WE deeply regret to announce the death, which occurred on Friday last, April 8th, of Sir Ernest Hodder-Williams, head of the publishing firm of Hodder and Stoughton, and for rather more than six years Chairman of Messrs. Wakley and Sons, the proprietors of THE LANCET.

John Ernest Hodder-Williams was the eldest son of John Williams of Bromley by Mary Hodder, who was the daughter of Matthew Hodder, the famous publisher who, in association with Thomas Wilberforce Stoughton, developed the activities of the House later known by their joint names.

ERNEST HODDER-WILLIAMS.

Ernest Williams was educated at the City of London School and University College, London, and further pursued his studies in Paris and Berlin. He entered the firm of Hodder and Stoughton when little more than a boy, and consequently worked for more than fifteen years under his grandfather, who did not die until 1911, after 60 unbroken years as a publisher. On Matthew Hodder's death, T. W. Stoughton, who had been connected with the firm for over 40 years, with the late Sir William Robertson Nicoll, as literary adviser, became the senior partner; and upon his death in 1917 Ernest Hodder-Williams—the family having added the grandfather's name to their own—became the head of the firm. The progress of the firm during the association with it of Ernest Hodder-Williams and his brothers has been remarkable. Expansion in all directions of publishing activity was associated also with the success of the well-known newspapers the *British Weekly* and the *Bookman*, both of which are the property of the firm. The early bent of the House towards religious publication was never lost, but aided by far-reaching views, and with assiduous conduct of affairs, the list of publications rapidly became of an extraordinarily comprehensive nature, and now their imprint will be found upon standard works under every heading in any catalogue.

In 1920 the controlling powers of the Company owning THE LANCET were purchased by Messrs. Hodder and Stoughton, and Sir Ernest Hodder-Williams became Chairman of the Board, and we may quote, as descriptive of his relations with THE LANCET, his own words spoken at the centenary dinner of the paper. "I am very proud," he said, "to stand to-night in this place of a great tradition. Perhaps, under the circumstances, you will allow one personal reminiscence. In the days of my early manhood—and my father, whom I am delighted to see here this evening, will bear me out when I say that at that time one reached early manhood very early—I had the ambition to enter the medical profession, but the Fates, no doubt in kindness to my future patients, decided entirely otherwise. They did not, however, altogether forget, and after many years they presented to me a grand old surgical instrument—THE LANCET—fashioned out of a material with which I had become somewhat acquainted. And when I use the personal pronoun may I say at once that I refer not only to myself but to all my splendid associates. As proprietors of THE LANCET, my brothers and I made a vow—we have tried to keep it—that we would, as far as in us lay, do nothing which might leave the slightest stain of dishonour on a most highly honoured name. In these latter years laymen, business men and business women have worked increasingly side by side with professional men and professional women in many fields of service of peace and of war; in none, I think, with greater honour to themselves and to their cause than in the field of healing. It is because of this that we business men who control the destiny of THE LANCET feel deeply our responsibilities, our privilege and our opportunity. If we can be of any service in scattering far and wide the fine grain garnered from medical knowledge and experience we shall have share in the joy of the reaping."

In addition to his publishing work and his interest in this paper, Sir Ernest Hodder-Williams was intimately and importantly connected with the affairs of the City of London. He was for a long period a member of the Corporation, and during the past eight years had been Chairman of the County Purposes Committee. Further he had a deep and hereditary concern in the prosperity of the Young Men's Christian Association. His father was a nephew and intimate friend of Sir George Williams, the founder of the Y.M.C.A., whose right-hand companion in the first developments of the movement had been the veteran Matthew Hodder. In 1906 he wrote the life of Sir George Williams, in which the initiation, early struggles

and great success of the Association were eloquently detailed. He was also the author, with Mr. E. C. Vivian, of "The Way of the Red Cross" to which Queen Alexandra contributed a preface, and in which he was able to write with authority, for during the war he superintended for the Government the Red Cross propaganda. In all these multifarious activities, and in the assistance of many philanthropic agencies, such as the Royal Female Orphanage at Beddington, he showed the same strenuous enthusiasm and close attention to detail, and there is no doubt that his death, at the early age of 50, was largely due to the perpetual strain to which he subjected a delicate organisation. He had a serious breakdown over three months ago, from which he never rallied, and died of heart failure.

Sir Ernest Hodder-Williams was knighted in 1919 in respect of his war services, and three years later was created C.V.O., being also decorated by the Italian and Belgian Governments. He was twice married, first to the daughter of Mr. J. G. Oddy, who died in 1918, and secondly to Lilian, the daughter of Mr. J. R. Pakeman who survives him. The funeral service was held on Tuesday, April 12th, at the Westminster Chapel, where the Rev. Dr. J. A. Hutton spoke to a crowded audience, showing that the mystery of death at the prime of a full and useful life could only be made clear by Christian Faith and the realisation of Christian ideals. A memorial service was also held the same day at Christ Church, Grey Friars, in the City. The funeral took place privately.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Reading.

READING is the first county borough to send us a report for 1926, and the following are some of the statistics:—

Mid-year population—93,090; Birth-rate 17·6; Death-rates per 1000 of the population: All causes 12·2; Tubercle 1·12; Cancer 1·54; Respiratory diseases with Influenza 1·9; Heart disease 1·5. Death-rates per 1000 births: Neonatal, 24; Infants 50; Mothers from childbirth 3·0.

Dr. H. J. Milligan explains that the apparent decrease in population since 1925 is due to the fact that the Registrar-General has, in making his estimates, taken into account for the first time the electoral rolls throughout the country. The inference from these is that Reading loses population by migration. The death-rate from all causes, when standardised for sex and age constitution of the population becomes 10·6. The infant mortality is the lowest recorded, and it becomes more and more a neonatal matter. Thus of 83 infant deaths, 24 occurred in the first week and 40 in the first 4 weeks. The infant deaths from bronchitis and pneumonia are only about half, and from gastro-intestinal diseases less than one quarter of what they were in the years 1905–8. There is also the satisfaction that the survivors reach school in better physical condition, and that the school report shows that many of the entrants have already undergone remedial treatment—e.g., for tonsils and adenoids.

The post-war incidence of tuberculosis shows no tendency to decrease; the notifications of pulmonary tuberculosis in 1926 were the highest since 1918, and the deaths were only exceeded by one in the worst year, 1923. There is also no tendency for non-pulmonary forms to decline. Two new pavilions have been added to the Park Hospital, and it is hoped to provide there accommodation for advanced female consumptives, as has already been done for men. Dr. Milligan mentions the very high percentage of tuberculous milks as a "disquieting feature." Out of 42 samples of milk, taken at random, 8 gave a positive result, equivalent to 17 per cent. Last year the percentage was 14. In two of the cases the offending animal was not tracked out, probably owing to sales from the milk herd. In any case, as Dr. Milligan points out, this following-up after sampling is a long and tedious method of eliminating infected animals and a more efficient plan would be constant veterinary supervision and testing of herds. The efforts of the National Institute for Research in Dairying keep up interest in this matter in the Reading district, and one licence for the production and sale of "Certified" milk and eleven for the sale of "Grade A (tuberculin-tested)" milk were issued in the Borough during the year. There were no licences issued for Grade "A" or "pasteurised" milk, although a considerable proportion of the milk goes through some form of pasteurisation. There were two prosecutions of milk vendors for bottling milk in the street.

The improvements to the Maternity Home are nearing completion, and the new maternity department for complicated cases of labour at the Royal Berkshire Hospital, with one 5-bed ward and two single-bed wards, was opened during the year. Midwives sent for medical aid in 20 per cent. of the cases which they attended. The new regulation issued by the Ministry, requiring the notification of a rise of temperature of 100·4° F. for 24 hours or recurring within 24 hours, in parturient women came into force in October. The Local Authority is also required to provide specialist services, if needed. Four of the nine cases of puerperal fever ended fatally; three of them were in poor health before the onset of labour. The nine cases of pyrexia notified under the new regulations all made good recoveries: only three were seriously ill, two suffering from pelvic cellulitis and one from breast abscess. Small-pox has not occurred in Reading for 20 years, but the hospital provision at the Whitley camp is quite unsuitable and inadequate, and only 20 per cent. of the infants born are now successfully vaccinated. The attendances at the infant welfare centres continue to increase. Suitable foods are sold at cost price, but that this is not the primary attraction for attendance, says Dr. Milligan, is shown by the fact that two-thirds of the infants brought to the centres are breast-fed.

The number of new houses erected was 522, the highest since 1905. Of the total 173 were municipal, 231 received a subsidy, and 113 were the result of unaided private enterprise. Nevertheless the shortage of working-class houses remains acute and, in the absence of alternative accommodation, slums and overcrowding cannot be tackled. Eight small houses in ruinous condition, which should have disappeared long ago, were demolished during the year.

The activated sludge method of sewage disposal has now been in operation for a year, "but the results," Dr. Milligan writes, "leave something to be desired. . . . . By arrangement with the Company alterations are now being carried out in the design of the plant which it is hoped will effect the desired improvement in the character of the effluent."

In his school Report Dr. Milligan says "when the results are compared over a period of years it will be found that there is a small but definite improvement in the physical condition of the children examined." The increases in height and weight are shown in tables, and a decrease is noted in the incidence of impetigo, ringworm, unclean heads and conditions accompanying neglect and malnutrition. Thirteen out of 14 cases of otorrhœa selected during the year for ionisation "can at present be regarded as cured." The single dentist, Miss Mackinnon, is unable to overtake the whole of the work included in the model scheme of the Board of Education.

The number of cases of known organic cardiac disease in the elementary school is 57 (boys 21, girls 36), classified as follows: Associated with chorea, 6; with acute and subacute rheumatism, 27; with pneumonia, 2; with severe measles and whooping-cough, 2; with severe scarlet fever, 3; with no history of severe illness, 17. There were also found 27 rheumatic conditions with no apparent heart

defect—viz., rheumatic fever, 2; chorea, 8; chorea and rheumatic fever, 2; chorea and subacute rheumatism, 6; and subacute rheumatism, 9. There are 13,008 children on the rolls of the Reading elementary schools so that the 57 known "cardiacs" would be equivalent to 4·4 per 1000 of the school population, and the 84 "cardiacs" and "rheumatics" combined to 6·5 per 1000. Dr. Milligan does not think they have been successful in tracing all the cases of rheumatic and allied conditions in the schools.

Barnstaple.

The statistics for 1926 of this rural district are as follow:—

Population—18,630; Birth-rate 16·1; Death-rates per 1000 of the population: All causes 10·8; Tubercle 0·75; Cancer 1·4; Respiratory diseases with Influenza 1·0; Heart disease 1·4. Death-rates per 1000 births: Infants 19·5; Mothers from childbirth 0·0.

Dr. John R. Harper says his large district (its area is 129,768 acres) is almost entirely agricultural, except for a few parishes on the coast where there is fishing. The standard of living and comfort for labourers has improved during recent years, but much remains to be done in the replacement of "picturesque but badly lighted and ill-ventilated cottages." The population is largely increased by visitors during the summer months, and the popularity of Croyde has rendered the sewage disposal question acute. The sanitary inspectors mention that the increasing use of tinned and bottled foods makes it essential for each parish council to arrange for a recognised dumping place. At present the hedges, rivers, streams and beaches near any hamlet give evidence of this need. The building trade has been active and more plans were deposited in 1926 than in any of the last 25 years. The 92 dwelling-houses included 23 bungalows in brick or stone, 22 wood and asbestos bungalows, and 47 brick or stone houses of two or more storeys.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED APRIL 2ND, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 392 (last week 404); scarlet fever, 1311; diphtheria, 909; enteric fever, 39; pneumonia, 1264; puerperal fever, 29; puerperal pyrexia, 98; cerebro-spinal fever, 8; acute poliomyelitis, 8; acute polio-encephalitis, 1; encephalitis lethargica, 36; dysentery, 2; ophthalmia neonatorum, 133. No case of cholera, plague or typhus fever was notified during the week.

Outside the counties in which small-pox has recently been prevalent, one case was reported from each of the counties of Kent (Gravesend) and Surrey (Wimbledon). We learn from Dr. J. Cates that the case of small-pox at present under treatment in Surrey is of the severe variety met with in India. Infection occurred on a P. & O. boat. The attack of the disease is moderately mild and the patient is doing well.

Deaths.—In the aggregate of great towns including London, there was no death from small-pox, 2 (0) from enteric fever, 79 (3), from measles, 5 (1), from scarlet fever, 70 (22), from whooping-cough, 25 (5), from diphtheria, 40 (9) from diarrhœa and enteritis under two years, and 160 (25) from influenza. The figures in parentheses are those for London itself.

DONATIONS AND BEQUESTS.—St. Peter's Hospital for Stone and other Urinary Diseases has received an anonymous gift of £5000.—Mr. James Talbot, Birmingham, left £500 each to Queen's Hospital, Birmingham, Birmingham General Hospital, The China Inland Mission, St. Luke's Cottage Homes, the Children's Hospital, Birmingham, and four other institutions, and £250 to Muller's Orphanage.—Mr. Henry Barry Blagrave, Reading, Berks, left £2000 to the Royal Berks Hospital.—Sir Thomas Rodgerson Marsden, Rhos-on-Sea, and late of Oldham, bequeathed £1000 to Oldham Royal Infirmary "if not given in his lifetime."—Sir William Forest, Mayor of Blackburn, has received an anonymous gift of £1000 to the Blackburn War Memorial Infirmary Wing.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council held on April 7th Sir Berkeley Moynihan, the President, in the chair, the following were admitted honorary Fellows of the College: Roberto Alessandri (Rome); Edward William Archibald (Montreal); Frans Ali Bruno Krogius (Helsingfors); Paul Lecène (Paris); René Leriche (Strasbourg); Rudolph Matas (New Orleans); and Charles Willems (Liège).

The following were elected Fellows of the College as members of 20 years' standing: Cecil Fowler Beadles and Sir Henry John Gauvain.

E. Miles Atkinson, F.R.C.S. (Bath), was awarded the Jacksonian Prize for a dissertation on The Pathology, Diagnosis and Treatment of Abscess of the Brain. The subject for the year 1928 is the Surgical Treatment of Pulmonary Tuberculosis. Herbert Cecil Malleson, M.R.C.S., L.D.S., was awarded the John Tomes Prize for 1924–26 for work in connexion with Histology and Pathology of the Dental Tissue. Robert Gordon Wilbond, of Bristol, who obtained the highest number of marks in Anatomy in the recent First Professional Examination, was appointed a Begley Student for a period of three years. The diploma of Fellow was conferred upon G. F. G. Batchelor, St. Andrews Univ. and Guy's Hosp.; and R. W. Jones, Liverpool Univ. The Licence in Dental Surgery was conferred upon S. D. Marcus, Guy's Hosp.

UNIVERSITY OF DURHAM: *College of Medicine.*—A third lecture on the History of Medicine will be given at the College, Newcastle-upon-Tyne, on Wednesday, April 20th, at 4.45 P.M., by Dr. Charles Singer, of University College, London. Medical practitioners are invited to attend.

ROYAL INSTITUTION.—On Friday, May 13th, at 9 P.M., Sir Humphry Rolleston will give an address entitled Concerning Old Age.

QUEEN'S UNIVERSITY CLUB, LONDON.—The annual spring dinner of this Club will be held at the Connaught Rooms on Thursday, April 21st, at 7.30 P.M. for 8 P.M., Prof. J. A. Lindsay, the President, in the chair. Particulars may be obtained from the Hon. Secretaries, Dr. Purdon Martin, 9, Harley-street, W.1, and Dr. Ivan Magill, 11, Wimpole-street, W.1.

ROYAL INSTITUTE OF PUBLIC HEALTH.—The Council of the Institute have made the Smith Award to Brevet-Colonel James Robert Kaye, county medical officer of health for the West Riding District of Yorkshire. This award, which consists of a bronze figure of Hygeia by Charles L. Hartwell, R.A., is awarded triennially to a medical officer of health who is recognised as having done the most noteworthy work in the discharge of his official duties.

ROYAL SOCIETY OF ARTS.—On Monday, April 25th, at 8 P.M., Mr. John W. T. Walsh, senior assistant, National Physical Laboratory, will give the first of three lectures on the Measurement of Light. The other two will be delivered at the same hour on May 2nd and 9th. On Wednesday, May 18th, at 8 P.M., Mr. Robert R. Hyde will lecture on Industrial Welfare in Great Britain and the United States.

ROYAL SOCIETY OF MEDICINE.—A Colyer Prize was founded in June, 1926, to commemorate the 25 years' service of Sir Frank Colyer as honorary curator of the odontological museum. Its value is about £20 and it will be awarded triennially for the best original work in dental science completed during the previous five years by a dental surgeon educated at any duly recognised dental school in Great Britain or Northern Ireland who has not been qualified to practise more than five years at the date of the award. Applications for the first award should be submitted not later than July 1st, 1928, together with a general account of the candidate's research.

THE LATE DR. F. W. APTHORP.—Dr. Frederick William Apthorp, who recently died at Hove at the age of 78, was a Yorkshireman by birth, and studied medicine at Guy's Hospital, becoming M.R.C.S. Eng. in 1878. The Zulu War broke out soon after he qualified, and he went out to Zululand, serving in the Rorkes Drift area and elsewhere. Returning home he was for a time clinical assistant at the Evelina Hospital for Children, and at the Hospital for Disorders of Women in Soho-square. He eventually settled at Sidlesham, near Chichester, where in the western division of Sussex he had an extensive practice and held a number of appointments. In the early 'nineties he left West Sussex for Burgess Hill, and here he practised until failing health necessitated his retirement in 1921, when over six hundred people subscribed to a testimonial fund. Dr. Apthorp married in 1897 a daughter of Captain Mailing, C.M.G., of Hove, and she survives him.

THE marriage took place recently at St. John's Church, Stanmore, of Thomas Leslie Wakley, only son of the late Thomas Wakley, L.R.C.P., to Daisy Victoria Trist, eldest daughter of Mr. Ronald Trist of Aylward's Chase, Stanmore. The interest of the event for readers of THE LANCET lies in the fact that Mr. T. L. Wakley, the son of the late Editor of THE LANCET, is grandson of Thomas Henry Wakley, for many years Editor of this paper, and great grandson of Thomas Wakley, M.P., the founder.

DICKINSON RESEARCH TRAVELLING SCHOLARSHIP.—Applications are invited for this scholarship, which is of the value of £300, for one year, and is open to recent medical graduates of the University of Manchester. Particulars will be found in our advertisement columns.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—A course of six lectures on the Philosophy of Religion will be given by Dean Inge at 5.45 P.M. on Thursdays, May 12th, 19th, and 26th, and June 2nd, 9th and 16th, at the Royal Society of Arts, 18, John-street, Adelphi, W.C.2 (Fee 12*s.* 6*d.* Members half fee.) Applications may be made to the Director of Studies, 88, Kingsway, London, W.C.2.

JERUSALEM OPHTHALMIC HOSPITAL.—The report for 1926 of the Ophthalmic Hospital, maintained at Jerusalem by the Grand Priory in the British Realm of the Order of St. John of Jerusalem, states that 18,127 patients, Moslems, Christians and Jews, were treated, and that there were 4234 operations. In the six ophthalmic clinics in the rest of Palestine, at Nablus, Tulkeram, and Acre in the north, and Ramleh, Gaza, and Beersheba in the south, conducted by the Government and staffed with nurses trained, paid and supervised by the Order, there were, during the year, 13,576 new patients, 114,392 consultations, and 2684 operations.

AUXILIARY R.A.M.C. FUNDS.—The annual meeting of the members of the Auxiliary Royal Army Medical Corps Funds will be held at 2.30 P.M. on Friday, April 29th, at 11, Chandos-street, Cavendish-square, W.1, when the annual report and financial statement for 1926 will be presented, and the officers and committee for the current year elected.

FIRST AID FOR INJURED MOTORISTS.—The service of first aid in case of motoring accidents organised by the Order of St. John and the British Red Cross is now coming into operation. The scheme centres upon the 400 ambulance stations which have been established throughout the country since the war. First-aid posts are being formed from five to eight miles apart to link up the main ambulance stations. These posts will be manned by trained workers and equipped with stretchers and first-aid appliances.

NEW NURSES' HOME AT KINGSTON-UPON-THAMES.—The foundation-stone was laid last week of a new nurses home and other additions to the Kingston and District Poor-law Hospital which is a recognised training institute for nurses. The buildings, which have been designed by Mr. F. Danby Smith, will have four floors with provision for a fifth when required, and the estimated cost of the scheme is about £100,000. There will be separate bedrooms for 100 nurses and five sisters, suites for four assistant matrons, a library, lecture-room, and sitting-room.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—The Fellowship has arranged various special courses for May. Clinical and cystoscopic demonstrations will be given at the All Saints' Hospital from May 2nd to 28th and at 2 P.M. on every Wednesday during the four weeks there will be a special lecture on genito-urinary diseases. From May 2nd for four weeks, an afternoon course on Psychological Medicine will be held at the Maudsley Hospital. Another four weeks' course starting on May 2nd is one on Venereal Diseases at the London Lock Hospital. At 5 P.M. on successive Wednesdays, from May 4th to 25th Prof. Louise McIlroy will give lecture-demonstrations on antenatal diagnosis and treatment at the Royal Free Hospital. An intensive course will be given at the Central London Throat, Nose and Ear Hospital from May 9th to 28th. A clinical and an operative course is undertaken; they may be taken either together or separately, but early application is desirable as entry for the operative course is limited. The National Hospital, Queen-square, will give a course on Diseases of the Nervous System, from May 9th to July 15th. It will consist of clinical lectures and demonstrations, teaching in the out-patient department, and pathological lectures and demonstrations. If there are enough entries courses will also be given on the Anatomy and Physiology of the Nervous System, and on methods of examination. Two other courses lasting two weeks, begin on May 16th, at the Infants Hospital and at the Hampstead General Hospital. The first is open to those interested in infant welfare work as well as to post-graduates, and the latter is primarily for the benefit of the general practitioner. Copies of all syllabuses of the general course programme and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W.1.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

LANDLORD AND TENANT BILL.

ON Thursday, April 7th, Sir W. JOYNSON-HICKS (Home Secretary), in moving the second reading of the Landlord and Tenant (No. 2) Bill, said that under the existing law restrictions were imposed by landlords on the development and improvement of leasehold property which, in this twentieth century, the Government thought should not be imposed. There were, in many leases, covenants forbidding structural alterations without the consent of the landlord. The landlord retained a power of veto over these alterations. There was no tribunal to which the tenant could appeal. There was, further, the power of the landlord to take a fine from the lessee before permitting improvements to be made, and also to exact an additional rent. It was not proposed by this Bill to take away all these powers, but to give the tenant a right of appeal to an independent tribunal. The decision of that tribunal would be binding on both parties. The object was to protect the tenant against the action of a harsh or unconscionable landlord in regard to the question of compensation for goodwill, the renewal of a lease, the value of improvements made by the tenant, and the exercise of power under restrictive covenants. If any member of the House could show that any hardship would be inflicted on the good landlord he would be quite prepared to consider amendments in order that such a landlord should not be damnified. The sole object of the Bill was to remove a grievance which had been felt by tenants for a great many years. He believed that the Bill, fairly administered, as it would be under the Tribunal which was being set up, and with the restrictions and limitations contained in the Bill, would go a long way to remove many of those grievances. The Bill was not retrospective in regard to the question of improvements, because, for various reasons, such a proposal would be inequitable.

Mr. DALTON moved the following amendment:—

"That this House, being desirous of removing the evils inherent in the present leasehold system, and whilst welcoming a measure dealing with certain of these evils in relation to business premises, regrets that the measure is so drawn as to preclude its application to other premises."

He said that at a time when support was slipping away from the Government in various directions an effort was being made in this Bill to retain, at any rate, the support of certain sections of the community, notably the trading, shopkeeping, and tenant interests in business premises. He was afraid, however, that when those interests for whom the Bill was primarily designed had an opportunity of examining it rather more closely they would see that it was a very small, niggardly, and unsatisfactory satisfaction of what the Labour Party regarded as their just claims. The present leasehold system was apt to give rise to very grave injustice. The present law permitted landlords to confiscate the fruits of the past labour and enterprise of their tenants, and to hamper and penalise the future enterprise and labour of the same tenants. The refusal of any compensation for improvements made before the passing of this Bill was a very grave defect. There was a severe limitation to the business premises which would be included under Clause 12. A large number of tenants, who were professional men, had just as real grievances in kind, if not in degree, as the traders and occupants of business premises in the narrower sense. There was a large number of medical men, dentists, and other professional people who were just as liable to suffer from confiscation by their landlords if the goodwill which they had brought to their practices by the improvements they had made to their premises, as any other class of people. Particularly in the poorer parts of London a great many doctors had built up considerable practices. When their leases came to an end they were either turned out on the streets, or were compelled to pay a grossly excessive rent by their landlords, who were quite aware of the goodwill which had been created in respect of those practices. The same argument applied to Clause 14, and the principle that consent ought not to be unreasonably withheld in regard to the issue of new leases should be applied to professional people as well as to the occupants of ordinary business premises.

Sir W. JOYNSON-HICKS: Part II. of the Bill is not confined to business premises but relates to all premises.

Mr. DALTON: That is so far as not unreasonably withholding consent?

Sir W. JOYNSON-HICKS: Yes.

Mr. DALTON said he was glad that that had been made clear, but it was still true that Part II. in a restrictive sense only applied to leases granted after the commencement of this Bill.

Mr. MACLAREN seconded the amendment. He said that professional men had their goodwill just as much as any

other class of person when it came to assessing Probate Duty, and other things, and on the passing of a practice from one person to another. They could not conceive a goodwill without having on their mind an attachment to a particular site. Take the case of a professional man in Harley-street. A man might wander along Harley-street and knock at a door not feeling quite sure who was behind the door, but he went there because the doctors in that street have a particular reputation. It was the fact that they practised in Harley-street which endowed them with the thing which was called goodwill. Therefore he contended that the site had a great relationship with goodwill and a greater relationship than was conceded in this Bill.

Mr. ELLIS DAVIES said that the Bill was disappointing. It did not quite carry out the promise made in the King's Speech; certainly it did not fulfil the hopes raised in that speech. It did not enable a lessee, for instance, to claim the enfranchisement of his property; it did not affect a building lease; and it did not affect the houses of professional men. He did not understand why, for instance, a doctor was not to have the right to claim goodwill in respect of the premises which he occupied.

Dr. LITTLE said he wished to urge that the provisions of the Bill should apply to the premises occupied by professional men, and especially to doctors' premises. There were two classes of doctors who were concerned. First, there were the consultants who were particularly resident in London, and largely centred in one part—namely, the division which returned to Parliament, Sir D. HOGG, the Attorney-General. He (Dr. LITTLE) hoped that the right hon. gentleman might recognise that a very large body of his constituents were disturbed by the proposals. The way in which the present law acted he might perhaps illustrate by giving the case of a surgeon who took a house for a short period, who established a great reputation, and at the end of 14 years, they might suppose, was faced with the necessity either of removal or of renewing the lease. The landlord understood perfectly well that it was a very damaging thing for the man to remove from the neighbourhood, and the lease immediately went up to an extortionate value. This Bill was going to increase that problem very much. Leases were going to be more difficult to obtain under the provisions of this Bill, unless it was made to apply to professional premises. The Inland Revenue authorities regarded a doctor's house as business premises, and it seemed very unfair to exclude such houses from this Bill. Another class, perhaps more hardly hit, was the general medical practitioner. He had before him a copy of a resolution which contained the plea of the general practitioner. The resolution read:—

"That this meeting of . . . . . General Medical Practitioners urges the Government to make provision in the new Leasehold Reform Bill for security of holding for general practitioners who have been in many instances compelled to build on leasehold premises in order to comply with the requirements of the National Health Insurance Act with regard to waiting-room accommodation, &c., and to prevent ground landlords acquiring without compensation the goodwill of the practice which they have had no part or lot in creating."

Members of the medical profession were too busy to take much part in politics. They were a silent profession, and in gratitude for their habitual self-effacement, the Home Secretary ought to extend the provisions of this Bill to professional men.

Sir T. INSKIP (Solicitor-General), replying to the debate, said that such points as those raised by Dr. LITTLE and others in regard to the goodwill attaching to premises occupied by doctors and professional men generally, were really Committee points. He could assure the House that the Government had not the least desire to reject any reasonable proposals for making the Bill more effective for dealing with those evils which most hon. Members recognised to exist in the working of the leasehold system.

On a division the amendment was rejected by 240 votes to 83, and the Bill was read a second time and committed to a Standing Committee.

THE BUDGET STATEMENT.

Mr. CHURCHILL (Chancellor of the Exchequer), in the course of his annual Budget statement in the House of Commons on Monday, April 11th, said that as a result of the general strike and the coal dispute in 1926 there had been a decrease of revenue of over £17,500,000, and on the other hand an increase of expenditure of £14,000,000. This meant a total loss to the Exchequer of about £32,000,000. This was the overwhelming cause of the deficit of £36,500,000 on the Budget of 1926, and of a prospective loss in 1927 of £18,000,000. It further involved losses in 1928 and 1929 amounting to about £9,000,000. In spite of this, however, the revenue had survived. The exchange had stood like a rock without a higher Bank Rate than 5 per cent. with a reserve of gold larger than this time last year, and without any need to touch the precautionary American credits. These had never been used, and on the expiring of the original term next month they would not be renewed. The consuming power of the masses had been little affected by the troubles of last year. Beer and spirits alone among the main items of indirect taxation had reflected the results of the struggle. Income-tax, after deducting losses and deferments due to the strike, was £12,000,000 less than the estimate. Estate duty and super-tax together showed an increase of £2,750,000. Sundry loans and miscellaneous revenue had exceeded the estimate by £8,500,000. In the total result the revenue, apart from the strike, was only £1,250,000 below the estimate; and with the strike it was £19,000,000 below the estimate. The expenditure had exceeded the Budget estimate last year by nearly £22,000,000. Of this £15·4 millions were on Consolidated Fund Services—almost entirely debt interest; £6·4 was on Supply Services, and £14,000,000 was due to the coal stoppage. The Revenue and Expenditure of 1926 showed a deficit of £36,500,000 on the basis of a £60,000,000 Sinking Fund, instead of an estimated surplus of over £4,000,000. The total estimated expenditure for 1927 was £818,390,000. Referring to the efforts of the Government to reduce expenditure, Mr. Churchill announced that during the present financial year the Ministry of Transport would be abolished, retaining the Road Department, the functions of the Ministry of Mines would be distributed to other departments; and the separate existence of the Overseas Trade Department would be terminated. Legislation would be required for this purpose. The extension of the Old Age Pensions to persons of 65 next January would involve a substantial increase in the Ministry of Health. Nevertheless, it was proposed to make a marked contraction on new entries into the Civil Service. But this would not mean in itself any large diminution of expenditure. It would be necessary to secure definite reductions in expenditure, and assuming that the economies effected amounted to £8,500,000 the expenditure in 1928 would be the lowest of any year since the war. The further changes proposed in regard to income-tax were as follows: Schedule E (salaries) to be transferred to the basis of the preceding year. Super-tax in future to be assigned to the year prior to the one in which it is paid. This did not affect the basis on which it was assessed, nor the rate of charge, nor date of payment, But income-tax and super-tax would be expressed in the form of a single graduated tax on income. A single annual return would be required on the basis of the taxpayer's total income for the preceding year. It was also proposed to ask a body of experts to take in hand the codification of the income-tax law. Small amendments would be made to prevent avoidance in connexion with subscriptions to charities and to give exemption from income-tax to profits of public schools and other similar trading profits of charities. There would be a reversion to the pre-1918 practice of collecting income-tax on Schedule A in one instalment payable on Jan. 1st. The new sources of revenue to meet the £35,000,000 to £40,000,000 required included a duty on table ware of translucent and vitrified pottery; the inclusion of imported motor tyres under the McKenna duties; a raising of the duty on matches; increases in the duties on wines and tobacco; the transfer of £12,000,000 from the Road Fund to the general funds of the State; and the reduction of the period of credit to brewers.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 6TH.

Small-pox in Dundee.

Mr. THOMAS JOHNSTON asked the Secretary of State for Scotland whether he could give the house any further information regarding the outbreak of small-pox in Dundee; and whether he was aware that on the steamer *Macharda*, just arrived at the mouth of the Tay with a cargo of jute from Calcutta, there were three small-pox cases: and what steps he proposed to take to assist the local health authority in protecting the citizens from this additional possible source of infection.—Sir JOHN GILMOUR replied: Up to this morning the number of cases of small-pox diagnosed in Dundee was 66 excluding the three cases on the steamer *Macharda*. Of these, 66 cases 60 have been removed to hospital. The remaining six were not discovered till after recovery, when they were removed to a reception house for observation. Sufficient lymph has been issued for 30,000 vaccinations. A total of 8500 school-children had been vaccinated up to yesterday. The medical officer of health of Dundee received a wireless message and notified my department of the three cases on the steamer *Macharda* before the vessel arrived in port. The duty of dealing with the present situation in Dundee rests primarily on the local authority, but the medical officers of the Scottish Board of Health are in close coöperation with the Public Health Department of the City and are rendering every assistance in their power. The three cases on the *Macharda* provisionally diagnosed as small-pox were removed to hospital immediately on arrival on the afternoon of April 4th, and are very mild in

type. All the crew have since been vaccinated and their quarters on board disinfected. No native member of the crew is allowed to leave the vessel, but the European members are permitted to land on informing the medical officer of health or his representative where they are going. No one except those engaged in unloading is allowed to go on board and the stevedores were offered vaccination before the work of unloading commenced. I understand that the *Marharda* is leaving Dundee to-night.

Mr. JOHNSTON: May I ask whether this cargo of jute has been disinfected in any way, if it is to be allowed to be sent to the mills, and if the workers are to be allowed to operate on the cargo of jute.—Sir J. GILMOUR: The cargo of jute has never been handled or touched by any member of the crew and is being unloaded and placed in sheds.

Mr. JOHNSTON: Are you going to allow it to be used in public works?—Sir J. GILMOUR: I understand that the medical officer is satisfied there is no risk of cargo infection. It is not yet clear that those members of the crew who were diagnosed as having small-pox have actually got small-pox. There has been no contact between the members of the crew and the cargo.

Sir BASIL PETO: Has the right hon. gentleman any record of the number of cases among the 66 suffering from small-pox who have undergone recent vaccination?—Sir J. GILMOUR: I think none of them, but I would not like to say off-hand.

Mr. JOHNSTON: In the right hon. gentleman's first answer did he not say that these cases had been diagnosed as small-pox cases, and did he not say in his supplementary answer that he was not sure that they were small-pox cases? If they were small-pox cases, what guarantee has he that the raw jute has not been in contact with these people?—Sir. J. GILMOUR: Because the ship was loaded by other people at Calcutta, and the crew have never touched this cargo during the passage. All I can say is that the wireless message which was sent to Dundee stated that they diagnosed these cases as small-pox. On arrival every precaution was taken and the cases were removed to hospital; but it is very doubtful whether they are cases of small-pox; and, if they are, they are very mild cases.

THURSDAY, APRIL 7TH.

Medical Certificates—Officers' Pensions.

Major RUGGLES-BRISE asked the Minister of Pensions under what authority pensions or retired pay granted to officers under Article 539 of the Royal Warrant of 1914 for medical unfitness caused by military service had been reduced without, in each case, previous certification by the regulated medical authority that the disability did not seriously affect the officer's capacity for earning his living in civil life as required by the terms of the warrant.—Major TRYON replied: In every case where, for the purpose of the specially favourable terms of pension that may be granted under Article 539 to a Temporary Officer, it has to be decided whether his disability does or does not seriously affect his capacity for earning his living in civil life, the decision is supported by medical certification and, in addition, by clear evidence as to the officer's actual earnings.

Silicosis in the Metal Grinding Industries.

Mr. W. M. ADAMSON asked the Home Secretary whether grinders' disease in the edge-tool trade was scheduled as an industrial disease; and what regulations were enforced for its prevention.—Sir WILLIAM JOYNSON-HICKS replied: Silicosis has not been scheduled as an industrial disease under the Workmen's Compensation Act, but I have power to make special schemes under the Act to deal with it, and I am about to make a scheme which will embrace all the metal grinding industries including the edge-tool trade. As regards prevention, a code of regulations is in force under the Factory Act.

Mr. W. M. ADAMSON asked the Home Secretary if he could furnish returns of cases in the edge-tool industry of grinders' disease; and whether he had any record of deaths due to this disease for the past ten years.—Sir WILLIAM JOYNSON-HICKS replied: Statistics of the incidence of this disease in the edge-tool industry are not available. I regret therefore that a return of deaths caused by this disease in the industry cannot be furnished, but the honourable Member will find a detailed study of the subject in the report which was presented to Parliament in 1923.

Schools for Defective Children.

Mr. GIBBINS asked the President of the Board of Education the number of defective children under the authority of the Board of Education, and what accommodation was provided for them.—Lord EUSTACE PERCY replied: According to the latest complete returns of local authorities, there were 32,975 mentally defective children in England and Wales in 1925 and 142,889 physically defective, of which 75,285 were classed as delicate and 40,400 as cripples. There is accommodation in certified special schools for 17,233 mentally defective and 19,445 physically defective children. The hon. Member will, of course, understand that the total number of physically defective children dealt with during any one year is considerably larger than the number for whom accommodation is provided in special schools, since most of the delicate children require only a relatively short period at an open-air school, and the majority of the cripples can be so far benefited by orthopædic treatment as to render them capable of profiting from the instruction in ordinary elementary schools.

Secretaries to School Medical Officers.

Dr. VERNON DAVIES asked the President of the Board of Education if he was aware that 15 clerks were employed by the Lancashire education authority as secretaries to their school medical officers, with travelling and subsistence expenses while engaged upon their duties; and whether, seeing that in the case of other education authorities these duties were performed by the medical officers themselves, he would, in the interest of economy, arrange that the entire cost involved in this practice of the Lancashire authority should not be included in the Government grant.—Lord EUSTACE PERCY replied: The answer to the first part of the question is in the affirmative. As regards the second part, my hon. friend is mistaken in suggesting that in other similar areas these duties are performed by the medical officers themselves.

Percentage of Insured Persons.

Mr. HERBERT WILLIAMS asked the Minister of Health what percentage of the population of England and Wales was insured under the National Health Insurance Act in 1913 and in 1926 or, if the figures for 1926 were not yet available, in 1925; and to what cause he attributed the change, if any.—Mr. CHAMBERLAIN replied: The percentage of the population of England and Wales insured under the National Health Insurance Act is estimated to have been approximately 32 per cent. in 1913 and 36 per cent. in 1925. The change in ratio is partly attributable to the change in the average age of the total population. In the latter year also, the statistics of insured persons include disabled persons and persons over 70 years of age, while the 1913 statistics do not include such persons

Medical Members and Opticians Bill.

Dr. VERNON DAVIES asked the Minister of Health why no medical Member of this House had been asked to serve on the committee appointed to inquire into the registration of opticians, bearing in mind the fact that the subject was of great importance to the health of the people of this country, and that such a member could approach the question from a more detached standpoint than that of medical men actually in the practice of their profession.—Mr. CHAMBERLAIN replied: I followed the usual practice in consulting the medical organisations specially concerned, and the three medical members were appointed on the nomination of the Royal College of Physicains, the Royal Society of Medicine, and the British Medical Association.

Dr. DAVIES: Is my right hon. friend aware that these gentlemen are probably representatives of those who are in actual practice at the present time, and is there any objection to having men on the Committee who have some knowledge of the subject, but who are not in actual practice, and may therefore be more or less unbiased?—Mr. CHAMBERLAIN: I think it is very desirable that there should be representatives of those who have experience of actual practice, because I think that the opposition to the Bill comes very largely from that quarter.

Lieut.-Commander KENWORTHY: Would it not be a compliment to the House if an actual member of the House were appointed.—Mr. CHAMBERLAIN: That, of course, is a matter of opinion, but obviously members of the House will have their opportunity of discussing the Bill when it comes before the House.

Consultative Health Council.

Mr. BENJAMIN SMITH asked the Minister of Health when the consultative council of his department on general health questions last met.—Mr. CHAMBERLAIN replied: The Council last met on Dec. 7th, 1921.

FRIDAY, APRIL 8TH.

Diphtheria Deaths in Manchester.

Mr. GROVES asked the Minister of Health how many deaths from diphtheria had occurred this year at Higher Broughton, Manchester; how old were the patients; whether they were treated at the fever hospital; and whether they received antitoxin.—Mr. CHAMBERLAIN replied: I am informed

that ten deaths from diphtheria have occurred in the Higher Broughton district this year. The ages of the patients were as follows: 1, 17 months; 1, 4 years; 2, 5 years; 2, 6 years; 1, 8 years; 2, 10 years; 1, 12 years. All these patients were treated at the Infectious Diseases Hospital of the Salford Corporation and all received antitoxin.

Disinfection of Telephone Mouthpieces.

Mr. DAY asked the Postmaster-General whether any further consideration had been given by his department with a view to disinfecting telephone mouthpieces against such epidemics as influenza.—Sir WILLIAM MITCHELL-THOMSON replied: I consider that the arrangements for regularly disinfecting the mouthpieces of public telephones are adequate.

MONDAY, APRIL 11TH.

Infant Mortality in Palestine.

Colonel WEDGWOOD asked the Secretary of State for the Colonies what were the latest figures for infant mortality in Palestine, distinguishing if possible between Arab and Jew; and what steps were being taken to improve these figures.—Mr. AMERY replied: The infant mortality-rate per 1000 births was in 1924, 184·83; 1925, 188·64; and 1926, 163·15. Similar figures in respect of the various sections of the population of Palestine are not available. As regards the latter part of the question, 29 non-government infant welfare centres have been established in Palestine, to many of which the Government had given considerable financial assistance. In addition, two Government centres have been established, where special training by experienced British nursing sisters is given to women who wish to take up infant welfare work. A training centre for midwives has been established, at which 43 women have already qualified, and a scheme is on foot for establishing nursing clinics in a number of villages.

Cholera in India.

Mr. SHORT asked the Under Secretary of State for India whether he was in a position to give the House any information with regard to the epidemic of cholera in the Bombay presidency; and what special measures were being taken to arrest the spread of the disease.—EARL WINTERTON replied: The epidemic appears to have started in the Dharwas district in February last and to have since spread to three other districts. Figures relating to these outbreaks have not yet been received. The measures taken to arrest the spread of the disease are a matter for which the Local Government are responsible, but my noble friend the Secretary of State has no reason to suppose that all possible steps to this end are not being taken.

Registration of Opium Consumers.

Mr. GARDNER asked the Secretary of State for the Colonies whether the registration of opium consumers was now generally applied in the Straits Settlements and Federated Malay States; and, if not, how soon it would be applied.—Mr. AMERY replied: Opium consumers are not registered in the Straits Settlements or the Federated Malay States though the governments of those territories have put into operation certain measures which are designed to lead up to registration of consumers if and when circumstances permit.

Mr. GARDNER asked whether any system of registration of opium consumers had yet been introduced in North Borneo; and, if not, whether representations would be made to the British North Borneo Company urging the desirability of taking this step, as a first measure towards the suppression of opium smoking contemplated in the Hague and Geneva Opium Conventions.—Mr. AMERY replied: The government of the State of North Borneo has recently introduced an experimental and tentative system of registration of consumers of opium.

Secretaries for School Medical Officers.

Dr. VERNON DAVIES asked the President of the Board of Education how many local education authorities provided their medical officers with secretaries, who accompanied these medical officers on their visits to schools for the examination of children, and what duties were performed by these secretaries.—Lord EUSTACE PERCY replied: As I have already informed my hon. friend, the arrangement made by the Lancashire authority appears to be exceptional. The duties of these clerks are, I understand: (*i*) To prepare the cards for routine and special medical inspection; (*ii*) to prepare the summaries for the school medical officer's monthly and annual reports; (*iii*) to send notices to parents and arrange times of interview with the assistant school medical officer; (*iv*) to arrange appointments for dental treatment of cases referred by the assistant school medical officer; (*v*) to arrange appointments for ophthalmic treatment; (*vi*) to arrange appointments for the orthopædic surgeon, to take down his reports in shorthand and to transcribe them; (*vii*) to take down in shorthand the assistant school medical officer's reports on school sanitation and to transcribe them. These duties, except the first, are practically one and all such as are undertaken by the clerical staff of any large local education authority and are usually completed at the offices of the local education authority. In certain areas this is also true of the first where an inspection card is made out at the office when the child is placed on a School Register.

Sale of Poisons by Licence.

Lieut.-Colonel FREMANTLE asked the Home Secretary what traders, if any, interested in the sale of poisons by licence, or otherwise, were represented on the committee now sitting to investigate the working of the Poisons and Pharmacy Acts; and when the report of the committee might be expected.—Capt. KING (Financial Secretary to the War Office) replied: I have been asked by the Lord President of the Council, who appointed the committee to say that traders engaged in the sale of poisons, both by wholesale and retail, are represented on the committee. I am unable to say when the report of the committee may be expected.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, The Prince of Wales's General Hospital, Tottenham, N.

WEDNESDAY, April 20th.—2.30 P.M. to 5 P.M., Medical Skin and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

Appointments.

HOLMES, EVELYN M., M.B., Ch.B. Manch., has been appointed Medical Officer in charge of After-Care Clinics, and House Surgeon, Shropshire Orthopædic Hospital, Oswestry.

LESSLIE, NONA S., M.B., Ch.B. St. And., D.P.H., Assistant Medical Officer, Dundee Education Authority.

MORRIS, EILEEN, M.B., B.S. Lond., House Surgeon to the New Sussex Hospital for Women and Children, Brighton.

STRATFORD, H. M., F.R.C.S. Edin., Consulting Surgeon to the Westminster General Dispensary.

Westminster Hospital: SMITH, B. A., M.R.C.S., L.R.C.P., Lond., and HOLMES, D. P., M.B., B.S., M.R.C.S., L.R.C.P. Lond., House Physicians; HATTHORNTHWAITE R. A., M.B., B.Ch., M.R.C.S., L.R.C.P., House Surgeon; SLATER, P. P., M.R.C.S., L.R.C.P. Lond., Resident Obstetric Assistant.

Certifying Surgeons under the Factory and Workshop Acts: HOLMAN, A. G., M.R.C.S. Eng., L.R.C.P. Lond. (Aylsham) Norfolk); WILSON, H. M., M.B., Ch.B. Glasg. Linton, Cambridge).

Vacancies.

For further information refer to the advertisement columns.

Ashington Hospital, Northumberland.—Jun. H.S. £100.

Aylesford, Kent, British Legion Village Hospital &c.—Jun. P. £100.

Bethlem Hospital, Lambeth-road, S.E.—Two H.P.'s. £25 per quarter.

Birkenhead General Hospital.—Senior and Second H.S.'s. £200 and £150 respectively.

Blackburn and East Lancashire Royal Infirmary.—Third H.S. £150.

Bradford Royal Infirmary.—H.S. and H.P. Each £150.

British Guiana.—Surgeon Specialist. £1200.

Charing Cross Hospital.—Obstet. Reg.

Charing Cross Hospital, Institute of Pathology, 62-65, Chandos-street, Strand, W.C.—Asst. Pathologist. £500 for first six months.

Chester, East Lancashire Tuberculosis Colony, Barrowmore Hall, Great Barrow.—Asst. M.O. £250.

Chester Royal Infirmary.—Hon. Surg. to Ear, Nose, and Throat Dept.

Coventry and Warwickshire Hospital.—Hon. S., and Hon. Asst. P.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.P., H.S., and Cas. O. Each at rate of £125.

East London, Municipality of the City of, South Africa.—M.O.H. £800.

Essex, Administrative County of.—Obstetric Specialist. £5 5s. per Consultation.
Exeter, Royal Devon and Exeter Hospital.—Res. Cas. O. At rate of £100.
Gloucester, Standish House Sanatorium, Stonehouse.—Asst. M.O. £250.
Gloucestershire Royal Infirmary and Eye Institution.—Asst. H.S. At rate of £120.
Gravesend and North Kent Hospital.—Jun. H.S. £150.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Kent Education Committee, School Medical Service.—Dental S. £500.
Lancaster Borough.—Asst. M.O.H., &c. £500.
Leeds, City of.—Asst. M.O.H. £900..
Leigh Infirmary, Leigh, Lancashire.—Res. H.S. £150.
Manchester City.—Asst. Tuberculosis O. £600.
Manchester Royal Infirmary.—Dickinson Research Travelling Scholarship in Medicine. £300. Also Jun. H.S. and Anæsthetist. Each at rate of £100.
Marseilles, Queen Alexandra Memorial Hospital.—Res. H.S.
Middlesex County Council Dental Service.—Asst. Dental O. £500.
Miller General Hospital for South East London, Greenwich-road, S.E.—Out-Patient Officer. £150. Also Hon. Asst. Orthopædic S.
Newcastle-on-Tyne, Royal Victoria Infirmary.—Hon. S.
Northern Rhodesia.—Medical Woman for Pioneer Work at Mbereshi.
Preston, Lancs, County Mental Hospital, Whittingham.—Sixth Asst. M.O. £350.
Prestwich County Mental Hospital, near Manchester.—Asst. M.O. £350.
Putney Hospital, Lower Common, Putney, S.W.—Res. M.O. £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. At rate of £100.
St. Leonards-on-Sea, Buchanan Hospital.—Two Out-Patient P's.
Stockton-on-Tees, Stockton and Thornaby Hospital.—Jun. Res. M.O. £150.
Stoke-on-Trent City Education Committee.—Asst. School M.O. £500.
Walsall General Hospital.—Sen. H.S., and Jun. H.S. At rate of £200 and £125 respectively.
West London Hospital, Hammersmith-road, W.—Hon. Med. Radiologist. Also Asst. P.
Western Australia, Hospital for the Insane, Claremont.—Pathologist and Bacteriologist. £576 to £708.

Births, Marriages, and Deaths.

BIRTHS.

ADSHEAD.—On April 7th, the wife of Surgeon-Commander G. P. Adshead, Royal Navy, H.M.S. *Impregnable*, of a daughter.

CAMPBELL.—On April 3rd at a nursing home, Looe, the wife of Frederick Campbell, M.D. D.P.H., of Polperro, Cornwall, of a son.

MACCALLAN.—On April 9th, 1927, at 33, Welbeck-street, London, W., the wife of A. F. MacCallan, C.B.E., M.D., F.R.C.S., of a son.

MACPHAIL.—On April 6th at Greylees, Sleaford, the wife of I. R. Macphail, L.R.C.P. & S. Edin., of a daughter.

DEATHS.

SYMONS.—On Feb. 26th, at Lincluden, Palmer-place, North Adelaide, South Australia, Mark Johnston Symons, M.D.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

CONGRESS OF PSYCHOTHERAPY IN NAUHEIM.—The second General Congress of Psychotherapy will be held from April 27th–30th at Bad Nauheim, when lectures and addresses will be given by specialists from all parts of Germany. The subject of psycho-analysis, for instance, will be dealt with by Schilder (Vienna), Goldstein (Frankfort-on-Main), Binswanger (Kreuzlingen), and Simmel (Berlin); while all branches of the subject from hypnosis to curative pædagogy will be included. The Congress is intended not only for specialists but as an opportunity of interesting the medical profession as a whole in the mental side of therapeutics.

PROGRESS OF CHARING CROSS HOSPITAL.—At the annual meeting of the board of governors it was stated that of the £70,000 required for the purchase of the adjoining old building and site of the Royal Westminster Ophthalmic Hospital, £46,000 had actually been paid and a further sum of nearly £10,000 was available. Mr George Verity, the chairman, announced that, through the generosity of certain well-wishers, the Institute of Pathology had been placed on a financial basis which had enabled the hospital to create a service that would be of the greatest value to the public. In an address read to the York Women's Luncheon Club, Mr. Philip Inman, the superintendent of Charing Cross Hospital, stated that it deals with 2000 accident cases every week.

Notes, Comments, and Abstracts.

GABRIEL BOUGHTON.

BY GEORGE C. PEACHEY,
SURGEON, BOUGHTON AND EAST INDIA TRADE.

THE early history of British trade in Bengal contains this picturesque story, according to which the concessions that enabled the East India Company's servants to establish factories and to trade duty-free in that province were obtained through the magnanimous behaviour of a surgeon named Gabriel Boughton, otherwise Bowden, who, having cured first an imperial princess and then one of the consorts of the Prince Shujâ, the viceroy of Bengal, declined to receive any personal remuneration, but begged that in lieu thereof his fellow countrymen might be granted the commercial privileges they had long desired.

The story, which is mentioned by Wadd in his "Mems. Maxims and Memories" (1827) and many others, has been traced by Sir William Foster[1] to the copy of a memorandum formerly among the "Factory Records, Fort St. George." The original document is no longer extant, and there is internal evidence that much of it was derived from hearsay, and was in many respects inaccurate. As will be seen, Boughton's alleged cure of the imperial princess, in 1636, is apocryphal, and his reported magnanimous refusal of compensation for services rendered in favour of trading concessions for his countrymen is equally unfounded. Still his influence in procuring permission to trade in Bengal, both for himself and the East India Company, whom he afterwards served, are facts which possess a lasting historical interest.

Nothing of Gabriel Boughton's early history has been recovered until, in January, 1644, he sailed from Madras on the *Hopewell*, in which vessel he had probably left England as ship surgeon just two years before. Meeting with very bad weather, his ship sprang a leak, and to save themselves from foundering they threw their lading overboard and made for Mauritius. There the *Hopewell* fell in with the *Dolphin* which had met with similar misfortune, and after refitting, the two ships went out together to Madagascar and the Comoros; but finding themselves in no condition to complete the voyage to Europe, they sailed for Surat, which was reached in September, 1644. Asâlat Khân, an especial favourite of the Mogul Emperor, Shâh Jahân, had long importuned the East India Company's President and Council at Surat to supply him with an English doctor, probably for his own infirmities, and the difficulty of finding one who could be spared and was willing to accept the employment had alone prevented them from acceding to his requests. But in January, 1645, Gabriel Boughton, "late chirurgeon to the *Hopewell*, being at Surat, very well qualified and willing to stay," was engaged upon that service and proceeded to Agra. In August–September, 1646, Boughton was at Balkh, in Afghan Turkestan—probably he and the companion mentioned in his letters of those dates were the first Englishmen to enter that town—and there is evidence that he was there in attendance as body-surgeon on Asâlat Khân, who was taking part with the imperial forces in the conquest of Balkh, of which he had been appointed governor by the Emperor. Boughton describes it as "one of the unwholesomest countries that ever I was in in my life, for never since my entrance into this city can I be in perfect health."

Asâlat Khân is said to have died in 1647, and Boughton is next found at Rajmahal at the Court of Shâh Shujâ, who was then in charge of the province of Bengal. There he was called in to attend one of that prince's favourite concubines, and having wrought a cure, he was taken into great favour and allowed ten rupees a day. This prince had been given by his father the government of all the revenues of Bengal, Bihar, and Orissa; and he offered to Boughton, if he desired to trade, freedom from customs and all other duties, and gave him two orders to that effect. These privileges Boughton passed on to the President at Surat, and about two years later a ship arrived from England and was permitted to trade free of all duties, probably owing to the good offices of Boughton with his patron. He was still at Rajmahal in December, 1650, when he is described as "chirurgeon to the Prince," and there is reason to believe that he was alive in January, 1652, though he was certainly dead before August, 1653. His widow, "a Mogullana or Moorish woman," subsequently remarried, leaving issue by her first husband, a son, Gabriel Boughton, of whom nothing is known.

The conclusions arrived at are that Boughton was at first a ship's surgeon trading with the East, that in January,

[1] The Indian Antiquary, September 1911, and May, 1912.

1645, he found himself in Surat, and hearing of Asâlat Khân's request, volunteered his services through the East India Company's President and Council. Thenceforward he was one of their servants, and as such used his influence on various occasions in their behalf.

Boughton has long been regarded by historians as having obtained the privileges of free trading from the Mogul Emperor for curing his daughter, the Princess Gahânârâ, who had been burned by her clothing catching fire. But this accident is known to have occurred early in 1644, at which time Boughton was at sea in the *Hopewell*. Though Asâlat Khân was in great favour with the Emperor, there is no evidence that Boughton was ever at the Court of the Great Mogul, and it is certain that, instead of an imperial fârmân being granted to him, he obtained trading concessions by the order of Shâh Shujâ which were special to himself and not general to the British. A fârmân was subsequently obtained by the East India Company from the Prince at a cost of 3000 rupees, granting free trade in his dominions, and this was followed by others, each terminating on the death or removal of successive rulers.

NATIONAL LEAGUE FOR HEALTH, MATERNITY AND CHILD WELFARE.

THE annual report of the League for 1926, representing its twenty-second year of life, shows evidence of increased activity all round. Nearly 500 individual cases were dealt with, and while the majority came for help in finding temporary or permanent homes for children, convalescence, or accommodation for confinement, all sorts of applicants presented themselves from medical officers wanting help in starting child welfare centres to deserted husbands with young children left on their hands. The Babies' Homes Department is responsible for three country convalescent homes for babies and toddlers, and, in conjunction with two other societies, for two nursery training schools and homes for babies in London. During the year 66 children stayed at the Marjorie Lumley toddlers' home, Maidenhead, 50 at the John Madocks home for definitely ill babies at Old Basing, and 67 at the Arkley home, near High Barnet. The Babies' Hotel for healthy children of the professional class was moved from Snaresbrook to larger quarters at Clapham Park, and was always full. Both here and at the Creagh Nursery Training School, in Kensington, students are received for training as nursery nurses. The Tired Mothers' Holiday Fund sent 16 women away for a fortnight's holiday, the mother in every case paying something towards the expense. A donation of £100 from the Ancient Order of Froth Blowers will enable this excellent branch of the League's work to carry on, just when the end of its resources appeared to be in sight. The publications department had a record year, the sales having reached more than 429,000 tems. This is one of the few activities of the League which .. not only self-supporting, but actually shows a profit.

COCOA.

A BOOKLET of 48 pages with attractive photographs and coloured plates has been published by Messrs. Cadbury Brothers Ltd., which tells the story of the cultivation of cocoa in a concise and instructive manner. Starting with Cortez sailing home to Spain after his expedition to Mexico where he found the Emperor Montezuma, drinking *chocolatl*, (to use its original name) flavoured with vanilla and other spices, the author describes its introduction into Spain where it was mixed with sugar, into France under Louis XVI, and into England under the Commonwealth, and notes the establishment in London of the Cocoa Tree Club and White's Cocoa House, adjoining St. James's Palace. Ecuador, Venezuela, Trinidad, San Domingo, Grenada and Ceylon have all contributed to the cultivation, the "Guayaquil" cocoa of Ecuador and the "Caracas" and "Criollo" of Venezuela cocoas being well-known names in early Victorian days. Brazil too has taken up the cultivation; but the most remarkable progress has been made in recent years in the colony of the Gold Coast, which in 1891 exported raw cocoa to the value of only £4, whereas in 1925 the value was £8,000,000. In the last 15 years the production of cocoa has mounted from roughly 26,000 tons to ten times that amount. In 1910 the total world's production was 220,000 metric tons of 1000 kilos, and in 1925 the figure had risen to 495,000 tons, of which the United States of America consumed in metric tons 166,000, Germany 81,000, United Kingdom, 57,000, Holland 44,000 France 43,000, Spain 10,000, Italy 8000, and Canada, Australia and some other countries 52,000. The United States takes an easy first place by consuming one-third of the world supply. The Gold Coast has an area of about the same size as Great Britain, and a population of 2,000,000 of whom only about 2500 are Europeans. Its immense strides in material prosperity are remarkable. In January and February of 1905 THE LANCET devoted some considerable attention to the subject of cocoa, and from these articles it can be gathered that the present day cocoa is very different from what it was in the early days. According to Dr. A. Wynter Blyth in a chapter on cocoa and chocolate in his well-known book on Foods published 45 years ago, the import of cocoa was only 9,000,000 pounds avoirdupois in 1875, and it could not be wondered at seeing the revelations of gross adulterations that had been made. The perfecting of the processes of growth and preparation is evidently meeting its due reward.

PRECAUTIONS IN THE USE OF X RAY EQUIPMENT.

Messrs. Watson and Sons (Electro-Medical), Ltd., Sunic House, 43, Parker-street, Kingsway, London, W.C. 2, are issuing warning notices with every X ray equipment supplied, to ensure the safety of those who operate it. A notice in permanent celluloid cover is fixed in the cabinet of the transformer, another is supplied loose for hanging on the wall of the X ray room, and a third, not celluloid covered, is attached to all instructions. The text of the notice runs as follows:—

WARNING.

1. Electricity is a fine Servant, but a very bad Master. The following precautions should be carefully read and conscientiously observed by all who operate X ray equipment.
2. The supply of current from the house main must be controlled by a double pole ironclad switch and fuses, with case suitably earthed and situated in an accessible position in the X ray room.
3. *In no circumstances should any adjustment be attempted without first satisfying yourself that the main switch is off.*
4. Especial care should be taken in dealing with that portion of the equipment which carries the high tension current, the wires connected with X ray tubes, &c. Remember that ordinary protective measures such as rubber gloves, &c., are useless and that fatal results may ensue if these wires are touched when the set is in operation. Keep at a safe distance from all high tension wires.
5. All units partly or wholly constructed of metal, the Couch, Screening Stand, Tube Stand, &c., must be properly earthed. Terminals are provided for this purpose.
6. Avoid slack high tension leads. They should be replaced wherever possible by permanent rigid connections.
7. Clean all insulators of ebonite, paxolin, porcelain, &c., each day with a dry cloth. Accumulation of dust and moisture causes leakage and possible breakdown.
8. Always operate the controls in the same order. Standard practice should become a habit.
9. Remember to see that all switches are in the off position immediately after making an exposure.
10. Do not neglect to use the devices supplied to afford protection against scattered radiation. The tube should be properly enclosed and every precaution should be taken to protect the operator from exposure to scattered as well as direct radiation.

First, last and always, never attempt any adjustment whatsoever without satisfying yourself that the main switch is off.

CHILDREN'S ALLOWANCES.

A REPORT [1] presented to the Council of the Women's National Liberal Federation finds that the level of wages is influenced by the supposition that a male wage-earner may require to feed and clothe a wife and two or three children, and that, though in many cases these needs are imaginary, the belief in their existence underlies the different scale of payment offered to men and women for similar work. When the introduction of machinery drove the workers into factories, men were accompanied by their wives and children, with the result that, however badly individuals were paid, the large family earned more than the small one. The Factory and Education Acts, by forbidding young children to work and insisting on their attendance at school, reduced family incomes and made it much harder for the mother to go out to work, leading, in many cases, to economic dependence of the wife and children on the male worker. So long as wages are based on the needs of the supposed average family of three children (actually found in 6·4 per cent. of wage-earners), it is obvious that the large family is at a disadvantage, though the general living standard has improved owing to the growing tendency to restrict the birth-rate. The report proposes that wages should be determined on the requirements of husband and wife, and that a uniform allowance, separate from wages and payable to the mother, should be made in respect of each dependent child. This rearrangement of the national wages bill could be carried out either by contributory insurance or by the industrial pool system. The latter scheme, which has proved successful on the continent—notably in France and Belgium—is favoured by the report, a section of which is devoted to a description of the working of children's allowances in other countries.

[1] Children's Allowances. Final report of the Family Endowment Enquiry Committee of the Women's National Liberal Federation, 1, Great George-street, Westminster, S.W. 1. 3*d*.

NEW PREPARATIONS.

COMPOUND AGOTAN BRAND OINTMENT.—We received this drug previously from Howards and Sons, Ltd., Ilford, in the form of tablets, in which shape we commented favourably upon it. They now supply it as an ointment, the active ingredient being phenyl cinchoninic acid. Agotan is of value by increasing the excretion of uric acid and urates in the urine, and has been found to give good results in various conditions of rheumatism and rheumatic arthritis, in lumbago, and in sciatic and other forms of neuralgia. The manufacturers possess evidence also of beneficial results obtained in erythema and urticaria, and in chilblains. The tablets (which were reported upon in THE LANCET of Jan. 3rd, 1925) can be taken with advantage while the ointment is in local use. Full directions for application are included with the drug.

LAXA is a combination of sterilised wheat bran and agar-agar, and is so prepared that it is crisp and palatable when dry, while, if it should become tough with the absorption of moisture, those pleasant qualities can be restored by placing the food in the oven. The directions are that from half a biscuit to two biscuits should be taken at each meal according to individual requirements; they can be substituted for bread or alternated with bread during the meal. The use of agar-agar as facilitating bowel movements is well known, and the new combination is a palatable one. It is supplied by Coates and Cooper, 41, Gt. Tower-street, E.C.3.

(1) NEUTRALON; (2) BELLADONNA NEUTRALON.—Neutralon is a synthetic aluminium silicate with the addition, in the second case, of 0·6 per cent. of extract of belladonna. It is prepared by Schering Ltd., 3, Lloyd's-avenue, E.C.3, and is a fine white odourless tasteless powder, insoluble in water but gradually splitting, under the influence of dilute hydrochloric acid, into aluminium chloride and silicic acid. The pharmacological properties claimed for it are based upon this decomposition, it being assumed that the salicic acid will remain as a protective covering to the stomach while the aluminium chloride set free will act as an astringent. A good deal of medical evidence has been published showing that the drug possesses antacid astringent and analgesic properties, so that its trial would be reasonable in affections of the gastric mucous membranes. When there is an addition of belladonna the preparation should be administered with care if given for a long period.

THEORIES ABOUT HIGH BLOOD PRESSURE.

WHILE the search for the cause of essential hypertension still proceeds, some find in the magic word toxæmia a solution of the whole problem. To deal with toxins is one of the functions of the liver; hence, they say, let the liver be stimulated to action and the blood pressure will be lowered. The failure of the liver to deal with the toxæmia is believed by Dr. H. R. Harrower to be due to the absence of an internal secretion which he claims to have isolated and calls "anabolin." In a book which has recently been published ("Anabolin, Detoxication and Hypertension," Baillière, Tindall and Cox, 1927, 10*s.* 6*d.*) he gives reasons for his conviction that "anabolin" is neither histamine nor choline, and that it does not contain enough of these substances to produce the effect of lowering blood pressure that he claims for it. The clinical records designed to prove that anabolin given by the mouth to patients with essential hypertension has this effect are disappointing since the cases are not described in sufficient detail. Moreover, the criticism based upon the fact that blood pressure has a habit of falling in these patients, at any rate temporarily, is met by the statement that the fall cannot be coincidence in every case. The facts that in an historical introduction Dr. Harrower is grouped with Glisson, Malpighi, and Claude Bernard, and that elsewhere in the book he refers to his great achievement (parallel with the discovery of insulin), are unlikely to influence men of science in favour of his claims.

"HE TOLD HIM ABOUT——, A SIMPLE HARMLESS PREVENTATIVE."

To the Editor of THE LANCET.

SIR,—I have just seen a half-page illustrated advertisement in an American medical journal which represents a youth, with an expression of eager anticipation, listening to his father's words. The latter impressed, as we are told, by knowledge of "the dangers of hidden diseases and their serious consequences in later life" is, by reason of his son having reached "the age of maturity, the dangerous age," advising him concerning the course of action which he should adopt in relation to his sexual life. His task over, the father feels that "he had done his duty" and "solved a difficult problem in an efficient and simple way." We can imagine the nature of the counsel which, as a wise father, he has laid before his son. With a vivid recollection of his own temptations he has dwelt upon an ideal, which he once held though he may possibly have failed to realise. That ideal may have had a religious or ethical foundation, but it would, in any event, be associated in the boy's mind with a chivalrous conception of the dignity and purity of womanhood.

But no, our imagination runs astray, for here we have a father who devoid of any form of idealism is doing his utmost to make his son even as himself. What did he say by way of counsel? "He told him about——, a simple, harmless PREVENTATIVE against diseases . . . . a product well-known to the medical profession." In other words, he essayed to show him how he might indulge his lust without paying any physical penalty. His efficient and simple solution of his son's difficulty was to rule out the higher and to be ruled by the lower factors in his nature.

To whom can such a libidinous advertisement commend itself? Only when all methods of dissuasion from sexual promiscuity have proved futile, when all worthy ideals have failed in their appeal, should the individual be instructed how to give rein to his erotic instincts by the adoption of measures calculated but never guaranteed to secure immunity from disease. But surely this counsel should be a last resort, given not primarily for the sake of the individual, but for the safety of other members of society whom he might injure.

I trust the journal will disclaim an advertisement likely to pervert rather than sublimate the physical strength of Young America. I am, Sir, yours faithfully,

CUSTOS.

A SILENT HANDICAP.[1]

THIS book is a sympathetic account of the lives of several children born deaf, and every chapter helps to build it into a first-class argument for the higher education of the deaf subject. The handicap under which these children and their similars are placed is well explained; sympathy with them is demanded throughout in a logical and not a mawkish way, and the varying attitudes of those who find themselves in contact with the deaf are brought out with precision and considerable humour. The passages which describe the evolution of Geoff, the portrait of Mr. Dockety, and the pictures of the various social and educational functions at which the children are present, all show insight and a really tender understanding. The different futures which lie before the born deaf are shown to depend upon the provision of proper opportunities for development, as well as on the special aptitude of the subjects. As propaganda for the promotion of a training for the deaf enabling them to use for the public good the gifts which they normally possess the book will be useful, and as a well-told and interesting story it should be a success.

VENOMOUS SPIDERS.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 11th, 1926, you commented on the venomous bites of certain spiders. This sort, a black spider with a red spot on its back, has an extensive distribution. It is not uncommon in Australia; and when it bites a person, as occasionally happens, the consequences are serious, as it causes intense generalised pain, which may last for several days. I enclose a cutting[2] from an Adelaide daily newspaper which shows, if the facts are to be depended on, that the trap-door spider also is capable of inflicting serious harm and may be fatal. I have some specimens of this spider's lair, with the trap-door complete. It appears to be identical with the form met with in Europe. I have not, however, seen the spider that inhabits it.

While on the subject of unusual poisons I should like to ask what truth there is in the statement (Timbs' "Doctors and Patients") that the secret poison used by the gypsies to kill pigs, &c., is a powder consisting of the spores of a fungus, which, when it enters the mouth, grows into innumerable long, fine filaments that enter the air passages and lungs and cause speedy death. It is also stated that a boy in Italy died in this way in 1860.

I am, Sir, yours faithfully,

F. LUCAS BENHAM, M.D., M.R.C.P.

Semaphore, South Australia, Feb. 28th, 1927.

[1] A Silent Handicap. By Ann Denman. London: Edward Arnold and Co. 1927. Pp. 313. 7*s.* 6*d.*

[2] The cutting describes an inquest on an infant whose death is said to have been due to the bite of a trap-door spider of a species "which was both venomous and rare." The case was stated to be the first on record in which a person had died from the bite of a trap-door spider.